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POLITICAL AND SOCIOLOGICAL

POSSIBILITY OF CREATING 'COALITION GOVERNMENT' EXAMINED

Tokyo JIHYO in Japanese Aug 81 pp 100-103

(Article by Kotaro Tawara, critic on political affairs; "Unifying the Moderates' Concept on Coalition Government Indecisive")

[Text] Once Again, Democratic Socialist Party's Concept of New Political Party

In spite of the fact that the "coalition era" was completely laid to rest by the double general election in 1980, within the middle-of-the-road political parties it seems the tendency to pursue the unfulfilled dream has not yet changed. Now an "ad balloon" for unification of the centrist parties in the Diet has been launched in spite of bitter experiences.

As usual, the one initiating the idea is the Democratic Socialist Party (DSP). The DSP, Komeito and New Liberal Club will unite and form one faction in the Diet, and as a first step will work as a unified body in the Diet. With this as the scaffolding, they aim in the direction of gradually uniting systematically. DSP Chairman Sasaki and former Chairman Kasuga have said they want to implement this in the extraordinary session of the Diet on reform this fall; and they have begun negotiating with the leadership of the other parties. But opposing views are said to be firmly rooted within the DSP leadership, starting with Chief Secretary Tsukamoto. And as may be expected, the Komeito and New Liberal Club will not easily follow suit. Only Diet member Den and Chief Secretary Narazaki of the Shaminren are positive. And it seems that some young members, such as Satsuki Eda and Naoto Suga, are not necessarily following suit.

Such reaction is natural. Naturally, in various meetings of the members making up the so-called unified faction, including those in the DSP and Shaminren, there exist reasons and consideration why they cannot accept such an idea now. Despite this, it must be said that it is most outrageous that veterans Sasaki and Kasuga, who should have had their eyes opened to moderation, are launching this extremely stale ad balloon as usual.

Indeed, it seems Sasaki's and Kasuga's ideas do not necessarily coincide. Sasaki, who was active as a representative of the "Shakomin Men" (men of the Socialist, Komei and Democratic Socialist parties) for 10 years with both

Saburo Eda and Junya Yano, has a deep personal desire to set up a "shakomin" new party; moreover, this has become his mission as a politician. Consequently, rather than being a matter of whether the view of a coalition era will miscarry because of the election, the Diet's judgment, instead, the more the format of various separate parties forming a "coalition" breaks down, the more there will be a repetition of trial and error due to the burning desire for a new party.

Then, as for Sasaki, who was originally a pro-communist, right-wing Densan official, is from a small faction in the Upper House and has little connection with the LSP, it is said he can hardly consider holding hands with some of the LDP. It is his honest intent to gather together large numbers of socialist members, and plan the total concentration of socialist, komei and democratic socialist power.

Is A Two Conservative Party Reorganization The Aim

On the other hand, Kasuga does not altogether trust the Komeito and has strong feelings of rejection for the left wing of the Socialist Party. On the other hand, because he is a long time veteran of Diet countermeasures, he has a pipeline into the LDP; lately in particular, he has strong connections with various factions within the LDP, such as the Fukuda faction and the Nakagawa faction because of the issue of friendly relations with Korea.

Consequently, it is said that Kasuga's idea is to aim at political power by setting up a new party on the basis of the DSP's status and strength whereby it can take the leadership, merging first the DSP and various factions of the JSP, and then adding the New Liberal Club and the Shaminren. And after establishing a position as the number two power in the political world by pulling ahead of the total of the socialists and communists, he would take measures for dismemberment of the LDP by uniting forces with the anti-Tanaka forces who split from the LDP.

If anything, it may be said that within the framework of his tentative reform of the opposition parties, Sasaki's move to consider cooperation with the LDP left-wingers, such as the Takeo Miki faction, and Kasuga's concept of aiming for political power all at once by making bold to work in concert with the LDP's extreme right are similar programs only at the outset; actually they are diametrically opposed programs. Saying this is a kind of whitewashing. There is the opinion that the relationship between the two men is quite muddy.

In short, in order for Sasaki, who finds it hard to fight an election with the scarce allied organizations and individual votes in the Hyogo fifth district, Japan's most unpopulated area, to be elected, he can by no means give a cold shoulder to the Komeito. Because of that, he cannot help but rely on the "shakomin" concept. On the other hand, Kasuga, who has an undesirable yet unseverable relationship with the Fukuda faction and the Nakagawa faction in many forms besides the political, is now carrying out the role of one chessman in the conservative factional strife; and it is said that

his aim is the reorganization of the political order by making the organization of two conservative parties the axis rather than the reorganization of the opposition parties.

However, aside from whether these opinions are on target or not, the various parties that are the subjects of unification by both Sasaki and Kasuga cannot help but consider these elements; and it cannot be denied that these have become primary factors about which the various parties think twice.

Third Road To Be Considered

Moreover, from the very fact that the DSP has joined two organizations, a union and the federation of new religions, it is difficult for it to move easily into the unified faction. Needless to say, the union is a cooperative union between labor and management which has private labor unions as its nucleus. It is said that in a low growth economy, the idea has appeared among some of the Diet members who depend on the union that rather than betting on a reorganization of the opposition parties, a liaison with the dove faction, the sensible faction of the LDP, should be deepened and the objective should be a new type of conservative party which can be supported by the labor unions. They are advocating that a search should be made for a road where the party name discards the "socialist" in Democratic Socialist Party and is changed to Democratic Party, the concept of "shakomin" (socialist, komei and democratic socialist) is discarded, and after joining with the New Liberal Club, they participate in the political party the LDP leads. They are trying to take a third road which differs from that of Sasaki and Kasuga.

Likewise, Chief Secretary Tsukamoto and Keigo Ouchi, who make the federation of new religions their foundation, having joined the anti-Soka Gakkai position of Rissho Koseikai which constitutes the nucleus of the federation of new religions, are opposed to deepening the cooperative relationship with the Komeito. This also is deep-rooted. Even though it is a reorganization drama led by the DSP, it cannot be said there is unity even within the DSP.

On the other hand, the Komeito, New Liberal Club and Shaminren which are in a position of receiving an invitation are all quite complex. The Komeito has the socially unethical problems of the Soka Gakkai and Taisaku Ikeda scandals, and cannot help but make its prime objective the prevention of these from becoming a political issue, and cannot help but give a logical explanation of its every action on this one point. Consequently, if the Komeito/Soka Gakkai leadership could be definitely guaranteed, their secret intent is to agree to the new party and united faction which would increase their right to speak. But conversely, if it cannot be guaranteed, they absolutely cannot join such a movement.

The Komeito would be swallowed up by a new party which is based on the hegemony of the anti-Soka Gakkai federation of new religions, and if it joins the new party which politically pursues the Soka Gakkai scandals, the Komeito

would naturally have to leave the new party and if that happened, it would be exposed even more than now to criticism that it is hiding its "scandals." So the Komeito has calculated it would be better not to pick up the chestnuts from the fire but wait for the storm to pass in its present system.

Unified Faction Concept Pernicious

From the Komeito's standpoint, it is natural for it to look with extreme caution on the DSP, which is strongly influenced by the federation of new religions and, as a matter of fact, on the Nakagawa faction which stands at the forefront in the pursuit of the Soka Gakkai's scandal, and to hesitate to join forces with them. Now when the Komeito has declined in the double election, the party's position of not agreeing to a party dissolution and to a union in which it would not be given complete leadership is expressed even in its reaction of wanting to wrestle with this question after recovering its strength in the next election.

In addition, the fact that Takeiri and Yano, executive officials, have already been around a long time and are facing a period of reform, is also a primary factor in avoiding a major change at this time.

In the New Liberal Club, the confrontation between the line of a centrist inclination having its nucleus in the so-called Kono Family---Yohei Kono, Seiichi Tagawa and others---and the line considering a return to the LDP has continued since the party's founding. Moreover, Takeo Nishioka and others have broken with the Kono Family and returned to the LDP. Now the gulf between Yoshio Yamaguchi's group and the Kono Family is deep, and even though Kono tried to change either to the new party concept or the unified faction concept this year, it is said that those within the party have not reached agreement.

In addition, there is absolutely no possibility that the New Liberal Club will align itself with the tie-up with the Fukuda faction and Nakagawa faction which Ikko Kasuga envisions; it is the same even for the Kono Family.

In the Shaminren, those who were formerly active and prominent in the JSP, Den, Narasaki and others, seem to be in a hurry to escape somehow the misery of being the minority party and to set up a large family in any way possible. But many do not necessarily agree with this. It is said that Eda, Suga and Yutaka Hata have strated thinking seriously about returning to the JSP. Since it is strange for the Shaminren, which is clearly in conflict with the DSP and closer to the JSP in Japan's two major points of contention, nuclear power and security, to join the assertions of the DSP and give consideration to a reorganization of the political world, Eda's idea is by far more logical. Den's "wish to be prominent" will only divide the organization if he drives recklessly in trying to grab onto the opportunity to speak.

When this is looked at, it clearly seems the concept of a moderate unified faction does not have even a glimpse of possibility, that is to say, it will be nothing but an ad balloon filled with gas. Besides Sasaki and Kasuga, there is no one who takes it seriously except for some rash, young newspaper reporters.

Moreover, the fact that this "concept" continues to dazzle excites various parties, including the LDP, and is connected also to the development of a trend of trying not to make another vigorous attack against the Komeito considering when there can, by some rare accident, be a unified faction.

It is a problem if a solution of the Soka Gakkai's many scandals of fraudulent investments, wiretapping and perjury which make a frontal challenge to democracy is more or less prevented by such actions, but that aim alone is succeeding somehow or other.

The "concept" of a moderate unified faction which cannot help but become something more than a fig leaf covering the Soka Gakkai's scandals, has now become something pernicious.

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SCIENCE AND TECHNOLOGY

DEFENSE INDUSTRY WANTS WEAPONS EXPORT BAN LIFTED

Tokyo TOKI NO KEIZAI in Japanese No 299, Aug 81 pp 94-99

[Article: Tremendous Ambition of Japan's Defense Industry Awaiting the Lifting of the Weapons Export Ban; Facts on Japanese Industries, 'Dreadful Shadow Figure' With Potentially the World's Mightiest Competitive Power"]

[Text] A stupendous chorus in the financial world has begun advocating the lifting of the export ban on weapons. Behind this action lies the ambition of the Japanese industries which flatten themselves as being the "world's mightiest competitive power," betting upon weapons as the last large export commodity.

Financial World Betting on the "Last Export Commodity"

A tug of war known as the Japan-U.S. defense talks is being played out while Japan is well aware of the disparity between Japan, which is striving for defensive military power within its territory, the islands of Japan, and the United States, which is scheming to strengthen its military power in the Far East, in accordance with its world strategic plan.

In the midst of all this, the Defense Production Committee of the Federation of Economic Organizations is about to make a recommendation: "a Japan-U.S. Joint Weapons Development Idea."

Of course, as long as it is presented as an idea, the proposal is within the realm of an idea, and it is not of a nature to take shape and form at the moment. However, in all candor, there is a dreadful intention hidden behind this Japan-U.S. Joint Weapon Development Idea.

That is, the proposal includes the concept that Japan, with the world's precision machines and electronics technology, will be in charge of electronics parts production and bring the products to U.S. munitions factories for assembly of the latest weapons, such as precision guided missiles and cruise missiles, for use in Japan and the United States.

In short, it is a suggestion that Japan export unassembled parts of the latest weapons and in return the United States will be responsible for the assembly of

the finished weapons to be used by the two countries as military equipment. In other words, the proposal may have an underlying motive woven into the fabric: an invitation to develop the latest weapons jointly in the future to get around the impasse of the weapons export ban policy.

As everyone knows, there is a heavy "foot chain" called the weapons export ban in Japan.

During the Sato cabinet, the "Three Principles for the Export Ban" were established, banning the export of weapons to the communist bloc, to nations to which the United Nations bans such export, and to nations engaged in disputes or suspected of entering into a dispute. Furthermore, in March 1976, under the administration of the Miki cabinet a total export ban system was enforced, banning the export of weapons even to areas other than the target areas listed in the "Three Principles for the Export Ban."

Naturally, in these circumstances, the Japanese defense industry cannot make a move even if it wants to. Thus, the Defense Production Committee of the Federation of Economic Organizations, which might well be called the Vatican of the defense industry, has improvised this "paradoxical plan," the joint development idea, and is trying to break the back of the weapons export ban policy using this as momentum.

Such movements in the financial world have often made their presence felt in the past. The defense industry and some financiers persistently opposed the export ban policy during the Sato and Miki cabinet periods, but they were driven back each time they tried to change the policy.

It was after the aggressive attack on Afghanistan by the Soviet Union that the opposition finally started to show spectacular moves, as if it had won a "civil right." Prime Minister Suzuki's proposal for the establishment of a national integral security council and the priority for increased defense expenditure in the FY-81 budget also encouraged the financial world.

In particular, chairman Shigeo Nagano of the Chamber of Commerce and Industry was very much involved in this issue. He appealed three times in 1978 and 1980 (spring and summer) for the lifting of the export ban, citing reasons for exporting weapons to the Middle East oil-producing nations, such as to secure energy and to foster an advanced defense industry to develop technology. His obsession was relentless.

The essential key, the Japan Weapons Industry Association, also maintains: "Strengthening of defense equipment means the autonomous accumulation of the latest technological ability, which functions eventually as a potential inhibitor against aggression by other countries. In addition, this will also affect the progress of civilian machinery and equipment." (Chairman Tomio Tanatsugu of the Japan Weapons Industry Association, vice president of the Toshiba Corporation).

It shows a glimpse of the fervor of the financial world in challenging the taboo.

Weapons Made in Japan Already in Spotlight

The Japan-U.S. Joint Weapons Development Idea may be simply an advertising balloon giving a lift to these speculations of the financial world and the defense industry.

In the background of the proposal is the secret real motive of the defense industry--for instance, this account was leaked by an executive of Mitsubishi Heavy Industries, which can be titled the "mecca of the defense industry": "The largest factor that blocks the development of the defense industry is the export ban policy. Because of this policy, we are forced into the present predicament of being unable to operate a mass production system and the consequent suffering from high costs. Due to this, we are forced to engage in disadvantageous business competition, and as a result, only production under license is left for us, like the F-15 fighter aircraft and P-3C antisubmarine patrol planes. Frankly, Japan, shackled to this cumbersome burden, is impelled to buy expensive defense equipment."

However, this does not mean at all that the Japanese defense industry is far behind the lead of the United States.

For example, let us look at the Model 74 tank of Mitsubishi Heavy Industries, which is known to have been made by integrating the cream of Japan's technology. The year before last, to be exact, when Ezaki, the minister of MITI at that time, was visiting various Middle East nations, he was asked by each nation to "sell" this modern weapon, which indicates the reputation of this tank. Other than this incident, inquiries about this equipment have been coming from every nation. Last fall, for instance, Chrysler of America directly made contact with Mitsubishi Heavy Industries, asking "whether Mitsubishi is interested in joint development of tanks for Korea," which is another proof of the excellence of our tanks.

In the case of the next-generation medium training aircraft (MTX), inquiries are arriving one after another. This plane is still in the stage of heated competition for the order to be received among Mitsubishi Heavy Industries, Fuji Heavy Industries and Kawasaki Heavy Industries. The inquirers are aware of this delicate situation, but still insist on sending for information. Some inquiries are very impatient and request the "export of the planes as soon as the export ban is lifted," although they are well aware of Japan's weapons export ban policy.

Japan's high technology products have made many conquests in the world's markets, from automobiles, ships, electrical machines and appliances, watches and cameras to electronic machinery and equipment. Maybe because of the trust in the high technology represented by these products, they are thinking of opening up a connection with Japan before it is too late.

In fact, the precision machines and electronics technology of Japan are drawing attention because they are recognized as having the world's highest standard.

Furthermore, the current latest weapons would not exist without the electronics industry. As far as that is concerned, Japanese industry has potential competitive power.

To be more precise, guided weapons such as missiles consist of three elements--the sensory element called the sensor, a microcomputer (central control system) and an actuator (operating mechanism). In a nutshell, a sensor which utilizes electromagnetic waves and infrared rays catches the target, and a microcomputer which receives signals from the sensor guides and sends the missile to the target for destruction.

Naturally, all of today's weapons, starting with F-15 fighter aircraft, tanks and war vessels, carry a few or many of these electronic devices. The next-generation automatic air control system, the so-called BADGE X, is an electronic weapon that has integrated the cream of these computer technologies.

Taking a leap in thought, the computerization of tomorrow cannot make any advancement unless the triad of data-processing, office-automation machinery and equipment and communications are well integrated. Even the world's greatest computer firm, IBM, is far behind the Nippon Telegraph and Telephone Public Corporation in the field of communications.

This example is not actually necessary to understand the large lead maintained by Japan's technology in some fields. I am sure you can now picture the potential competitive power held by Japan's technological camp over the latest weapons in demand, when these technologies are put together and put to free use.

The Defense Production Committee of the Federation of Economic Organizations was confident about taking charge of the production of electronic parts in the Japan-U.S. Joint Weapons Development Idea only because of this background.

Last fall, a weapons procurement consultation agency was established between the U.S. Department of Defense and the Bureau of Equipment, Defense Agency. The ultimate purpose of the agency is said to be joint weapons development. If the Defense Industry Committee suggested Japan-U.S. joint weapons development on the assumption of this same idea being entertained by the two governments, we can say that Japan's export of weapons has begun to take shape step by step toward reality.

Defense Industry Advanced to Such a High Level

There is another factor behind the persistent stand of the financial world for lifting the weapons export ban.

Traditionally, the makeup of the defense industry was represented by the heavy industries functioning as a rivet to hold the industry together, namely, Mitsubishi Heavy Industries, Kawasaki Heavy Industries, Fuji Heavy Industries, and by machine manufacturers, namely, Japan Steel Works, Howsa Machinery, Daikin Kogyo and Komatsu. However, with the recent remarkable advance of electronics firms, the conventional rank and file of the defense industry is largely being expanded by the participation of Hitachi, Toshiba, Nippon Electric, Mitsubishi Electric, etc.

Picking the land, sea and air defense firms, for your reference, the following is the list of participants.

First, regarding firms related to missiles for the land defense sector, there are 17 contenders: Mitsubishi Heavy Industries, Kawasaki Heavy Industries, Fuji Heavy Industries, Mitsubishi Electric, Toshiba, Nippon Electric, Matsushita Electric Industrial, Japan Radio, Shin Kobe Electric, Ushio Electric, Toyo Tsushin, Daicel, Daikin Kogyo, Tohoku Metal Industries, Nippon Oils and Fats, Nissan Motor and San-ei Instrument (unlisted).

For land defense vehicles and equipment/machinery/materials, there are 11 contenders: Mitsubishi Heavy Industries, Japan Steel Works, Komatsu, Howa Machinery, Hitachi, Nissan Diesel, Hino Motors, Isuzu Motors, Nippon Aluminium, Kawasaki Heavy Industries and Mitsubishi Motors (unlisted).

For land defense fire arms and ammunition such as guns and artillery, bullets and powder, rocket bombs and rocket launchers, there are 13 companies: Howa Machinery, Asahi Seiki, Daikin, Nittoku Metal Industry, Komatus, Nissan Motor, Nippon Oils and Fats, Asahi Chemical Industry, Richo Watch, and three unlisted companies: Nippon Koki, Showa Kinzoku and Chugoku Kayaku.

For the air defense BADGE system (automatic air control system), there are six contenders: Nippon Electric, Nihon Aviatronics, Mitsubishi Electric, Toshiba, Fujitsu and Hitachi. For three-dimensional radars, Mitsubishi Electric and Nippon Electric are named. For MTX jet trainer aircraft, there are four companies: Kawasaki Heavy Industries, Mitsubishi Heavy Industries, Fuji Heavy Industries and Ishikawajima-Harima Heavy Industries. For missiles, there are six candidates: Mitsubishi Heavy Industries, Mitsubishi Electric, Nippon Electric, Japan Aviation Electronics Industry, Daikin and Nissan Motor. For aircraft machinery and equipment, there are 10 companies: Mitsubishi Electric, Toshiba, Nippon Electric, Hokushin Electric Works, Hitachi, Fujitsu, Oki Electric, Kokusai Electric, Japan Radio and Toyo Tsushinki.

Also, for F-15 fighter aircraft, Mitsubishi Heavy Industries, Kawasaki Heavy Industries, Fujitsu Heavy Industries, Shin Meiwa Industry and Japan Aircraft Manufacturing are interested in the airframe, while Ishikawajima-Harima, Mitsubishi Heavy Industries and Kawasaki Heavy Industries are interested in the engine. For airframe materials, Kobe Steel, Sumitomo Light Metal Industries and Daido Tokushuko can be named. For onboard electronic machinery and equipment, 19 companies are counted: Mitsubishi Electric, Toshiba, Nippon Electric, Hokushin Electric Works, Shinko Electric, Tokyo Keiki, Toyo Tsushinki, Shimazu Seisakusho, Japan Aviation Electronics Industry, Hitachi, Nittoku Metal Industry, Daicel, Sumitomo Seimitsu Kogyo, Owari Seiki, Shin Chuo Kogyo, Teijin Seiki, Tokyo Screws, Kayaba Seisakusho and Sakura Rubber.

For antisubmarine P-3C patrol planes, Kawasaki Heavy Industries, Japan Aircraft Manufacturing, Fuji Heavy Industries, Shin Meiwa Industry and Mitsubishi Heavy Industries are interested in the airframe, while Ishikawajima-Harima, Kawasaki Heavy Industries and Mitsubishi Heavy Industries are interested in the engine. For onboard electronic machinery and equipment, there are Toshiba, Mitsubishi Electric, Nippon Electric, Fujitsu, Kokusai Electric, Japan Radio, Shimazu Seisakusho and Sumitomo Seimitsu Kogyo, and Taiyo Radio and Koden Seisakusho from the unlisted companies.

For helicopters, Mitsubishi Heavy Industries, Kawasaki Heavy Industries, Fuji Heavy Industries and Ishikawajima-Harima Heavy Industries are the contenders.

For the sea defense sector naval vessels, there are Mitsubishi Heavy Industries, Kawasaki Heavy Industries, Hitachi Shipbuilding & Engineering, Ishikawajima-Harima, Sumitomo Shipbuilding & Machinery, Sasebo Heavy Industries and Mitsui Shipbuilding & Engineering. For naval vessel machinery and equipment, there is a long list: Mitsubishi Heavy Industries, Kobe Steel, Ishikawa Seisakusho, Japan Steel Works, Mitsubishi Electric, Nippon Electric, Hitachi, Oki Electric, Hokushin Electric, Shimazu Seisakusho, Tokyo Keiki, Nippon Kogaku and Hitachi Shipbuilding & Engineering, and unlisted Minami Kogyo and Watanabe Tekkojo.

Incidentally, picking the firms which had more than a 1-percent share of the Defense Agency contracts for FY-80, the following 13 companies in order of the share are highlighted: 1) Mitsubishi Heavy Industries, 24.6 percent; 2) Ishikawajima-Harima Heavy Industries, 11.4 percent; 3) Kawasaki Heavy Industries, 8.5 percent; 4) Mitsubishi Electric, 7.6 percent; 5) Toshiba, 3.4 percent; 6) Nippon Electric, 2.3 percent; 7) Itochu Aviation, 1.5 percent; 8) Nippon Oil, 1.4 percent; 9) Japan Steel Works, 1.3 percent; 10) Sumitomo Shipbuilding & Machinery, 1.3 percent; 11) Komatsu, 1.3 percent; 12) Hitachi Shipbuilding & Engineering, 1.2 percent; and 13) Tokyo Keiki, 1.0 percent.

As is clear from this, the defense industry connections with the Defense Agency are diverse. These industry groups have steadily achieved results and have built up Japan's defense industry. It is entirely predictable, however, that the breadth of the industry can be further expanded depending upon the future reinforcement of the defense setup.

It is the keenly felt desire of the financial world to see the weapons export ban actually lifted, in order to consolidate the defense industry which has shown a continuous growth.

Actual State of Extremely Clever Weapons Exports

An utterance as if intentionally in unison with the Defense Production Committee has come out of the Electronics Industries Association of Japan, which is rather a new face in the defense industry: "If MITI really means to promote the domestic production of weapons, first it should swallow the comparatively high cost of domestic weapons. Or else, it should permit the export of weapons and give the industry an equal opportunity to compete with overseas makers." (Chairman of the association Sadakazu Shindo, chairman of Mitsubishi Electric).

The lifting of the export ban, the association says, will open the door for free competition, to the extent that Japanese industry will get seriously involved in the business of technology development, and this will make it possible to make a bold investment from the standpoint of exploiting international markets. Naturally, the comparatively high cost of the products due to production under license can be trimmed independently. It is also confident that speedy progress in technology can be facilitated.

The weapons export ban is very much a pain in the neck to the defense industry.

Well, then, is the export of all products that fall in the category of weapons completely banned? It appears there are some points that keep us from making such a general statement. Last March, there was an incident in which American weapons makers headed by Lockheed were on a spree of buying masses of Japanese machine tools. It was obvious to anybody that what they purchased was equipment and machinery for the manufacture of weapons. However, nobody complained about the use of the machine tools exported as a general commodity, and the makers also kept their mouths shut and did not reveal the details of the transactions.

That is still an innocent case. In many cases, trucks, jeeps, helicopters and small vessels bound for Southeast Asia are exported fully for use as weapons. In such cases, however, they use a clever trick--first, private companies purchase these materials from Japanese manufacturers, and then they resell them to the armed forces of the country concerned for use as weapons, and the deals are almost never checked at the export stage.

Vehicles, vessels and helicopters exported from Japan as general commodities can be quickly converted by partial modification into artillery carriages, gun carriages and by fitting rocket launchers into modern weapons ready to fight. The floating dock exported by Ishikawajima-Harima Heavy Industries to the Soviet National Vessel Import Corporation was no exception. It is reported that the dock is serving as a facility to repair the Minsk, a large aircraft carrier of the Soviet Union.

The route used by the U.S. forces resident in Japan is more open. The U.S. Armed Forces in Japan are authorized a free pass to take home weapons made in Japan purchased in accordance with the treaty entitled "provisional special command" based upon the position agreement of the Japan-U.S. Security Treaty. As far as the U.S. Armed Forces are concerned, Japan's total weapons export ban has become meaningless. If it wants to, the United States can freely purchase weapons made in Japan through the invisible cloak of the U.S. Armed Forces resident in Japan.

To hit the nail on the head, it is easy for Japanese firms to pass through the mesh of the export ban by the shady route of the U.S. Armed Forces resident in Japan. As long as the Japan-U.S. Security Treaty is intact, it can be said that it is difficult to safeguard against "loopholes" in the export ban policy.

The actual state of skillful weapons exports is such that there are extraordinary "loopholes" ready to be taken advantage of (?), whether it is the route through the U.S. Armed Forces resident in Japan, or military equipment which is openly and freely handled as a general commodity.

The International Peace Research Institute in Stockholm, which has international prestige, prepares statistical data concerning the purchase of weapons procured by the military of each nation in the world. According to the data, the weapons exports of Japan in 1979 (period of 1 year) was up to \$21 million.

Since the weapons export ban policy is what is addressed, the government must undoubtedly check the transactions. The figures shown are obviously all from those which went through the "loopholes" previously described. It is a strange sensation that we feel as if we have found a "conscience" in the people who advocate

the repeal of the export ban in spite of the taboo, in the face of this kind of "scuttled policy."

Defense Industry Reserves Pouring In

Admitting that the business groups in various fields are shouldering Japan's defense industry as described before, new faces which can be termed the "defense industry reserves" are pouring in on the heels of the firms on the front line.

Let us first pick up the hidden defense-related firms.

Tokyo Screws, which holds 80 percent of the market shares of the domestic aircraft screws, has already been involved with the F-15 in connection with screws of a titanium alloy. Also, Nippon Miniature Bearing, which will absorb Tokyo Screws in October, is one of the reserves. The company manufactures extremely small bearings for aircraft, and has already made up its mind to join the defense industry as a freshman concurrently with the takeover.

Other companies which draw attention because of their dealings with titanium are Toho Titanium and Osaka Titanium Seizo. Including these two companies, there are as few as six companies in the world that deal with the titanium industry, a typical oligopoly industry, where supply is always behind the demand and shortage of commodities is a permanent setting. Nevertheless, demand for metal titanium is constantly increasing, as this metal is indispensable as a material for bombers and supersonic fighters. It is therefore inevitable that the two companies will tilt toward the defense industry whether or not they want to do so.

Speaking of materials for aircraft, carbon fiber is an element indispensable for weight reduction of an aircraft, and two companies, Toho Rayon and Toray Industries which handle this material, and Nippon Carbon which is the pilot of the carbon fiber, can also be regarded as members of the hidden defense industry reserves.

As for the "star" of weapons, rocket fuels, Nippon Sanso and Teikoku Sanso which manufacture hydrogen are also accountable. At the same time, Iwatani & Co which embraces a subsidiary that manufactures hydrogen cannot be overlooked.

Looking into the field of systems, there is Tokyo Aircraft Instrument, already known for achievements as a defense-related maker, which started to handle automatic control systems much earlier. Needless to mention is Japan Radio, which has a record of performance in electronic machinery and equipment for antisubmarine P-C3 patrol planes. Nagano Nippon Radio, which is closely related to the air defense force as its subsidiary, is also a future defense firm. Incidentally, Kyosan Electric Manufacturing, a missile trajectory calculator maker, can be also named as a noteworthy related maker.

Although the direct relationship is ambiguous, Fujikoshi and Toshiba Machine, which contract extensively with defense-related firms, should not be forgotten. Machine tools are predicted to grow with the military goods as they are required for high performance primarily to satisfy the aircraft industry of Japan in the future.

Other firms which have excellent technology in their respective fields will be more or less involved in the defense industry in the sense that the breadth of the defense industry will be expanding with its growth.

Weapons offer such a promising market that they can be called "the last large export commodity" left for the "Nippon" corporation. Such weapons are always required because of their characteristic high performance and superiority.

In this respect, it is needless to seek evidence in the case of computers. Engineers of Japanese industries are capable of producing high-quality products in a short time. There is no other way but to win with a brain that invents and cultivates high technology for Japan, since it is destined to the fate of having no resources, to compete and survive in the merciless competition of the international economy.

The defense industry is the type of industry for the future that conveniently suits this condition, and it has the merit of producing a blossom of applied technology from the defense technology.

Walking Aimlessly Alone in the Midst of Inconsistency

Is this fate responsible for the outcome of the vision held by financial leaders who address the strengthening of the defense industry with the images of the post-war "Shipbuilding Empire, Nippon" and the "glory" of the past Japanese Navy? According to that "logic," it is not impossible to understand the feeling of financial leaders who worry about the future of Japan, the resourceless desert, and cry out for barter trade, weapons for oil.

Yet, even in the name of the driving force which enables industries to compete to the end in the international arena and to support Japan's economy, it is not so easy to erase a tinge of anxiety over the short-term advocacy of repeal of the weapons export ban and reinforcement of the defense capability.

If we should happen to be adventurous enough to try to lift the weapons export ban as a policy for the survival of the industries, we would be making a grave, irrevocable mistake.

Turning from the context of the topic being discussed, it is said that American financial leaders and those around the Department of Defense are heard to say: "How about letting Japan make carriers, and have the U.S. Navy lease them?"

On the other hand, there were once rumblings from a part of Japan's financial world: "If there is any way Japan can get orders subcontracted..." by taking advantage of the 5-year shipbuilding and reinforcement plan of the U.S. Navy (97 ships to be built, budget \$50 billion).

This comment was criticized: "It is not proper to show one's appetite for a large business talk, pushing aside the unsettled discussion relating to the issues of the augmentation of the defense capability and the lifting of the weapons export ban." After all, this deal seems to have gone up in smoke. Nevertheless,

strange hustling of the financial world continues, somehow reminding us of the gloomy past incident, "Merchant of Death."

Anyway, the defense industry is regularly achieving results after results, expanding its breadth and scope. In this march for progress, the electronics sector is also about to take an important place. Japanese computer makers which were behind IBM in the past now can fight on equal terms in hardware against IBM.

Before we know it, the defense industry has rapidly grown large enough to start walking by itself. Naturally, there is contemplation about joining the international weapons markets. The defense industry must live through a transitional incoherent period, confined by the heavy chains of the weapons export ban, suppressing the compelling desire to make a display of its potential ability at any given moment.

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SCIENCE AND TECHNOLOGY

JAPANESE AIRCRAFT INDUSTRY SELECTING FOREIGN PARTNER FOR NEW YX PROJECT

Tokyo TOKI NO KEIZAI in Japanese No 298 Jul 81 pp 50-51

[Text] Aircraft Industry at the Crossroads

Betting on the New YX Project

The new YX project (commercial passenger aircraft for the period after next) will "determine the 'image' and 'direction' of the Japanese aircraft industry in the 1980's and 1990's." Since 1979, under the leadership of MITI, the Japanese manufacturers (Mitsubishi Heavy Industries, Kawasaki Heavy Industries, and Fuji Heavy Industries) have been working to choose a foreign partner and the manufacturers to be involved in the program have been narrowed down. First is the Boeing Company. The Boeing Company is the world's largest manufacturer of commercial passenger aircraft and has been working together with Japan on the YX program now under development. Another possibility is the combination of Fokker (of the Netherlands) and McDonnel Douglas (of the United States). At one time Airbus Industrie, an EC consortium, was a strong candidate, but it has dropped to the rear. At present, it has become very likely that Boeing or Fokker and McDonnel Douglas will be chosen.

The new YX is a medium size, short-distance jet aircraft which seats 130 to 150 passengers. It has good fuel economy and a low noise level. The partner will be chosen this year and development and production will begin with the objective of making a first flight in 1986. The commercial cargo aircraft development association of the foundation which worked with the YX is slated to be the development organization on the Japanese side.

The general framework of this plan did not take shape smoothly because a number of prospective partners emerged and caused a difference of opinion to arise between the government and industry. MITI was set on Airbus Industrie of Europe. It wanted to get in on that company's SA1 and SA2 projects (aircraft with seating capacity of 130 to 160).

In contrast, industry had doubts about Airbus. The company was very aggressive in selling its A300 and A500. The industry side felt that "if the government orders us to work with Airbus, we at least want it to take care of the sales risk." For the new YX, just as for the YX, MITI is only providing assistance of up to half of the development costs borne by the Japanese side.

In that case, the industry felt that the most reliable choice would be the Boeing Company which controls 50 percent of the world market. In fact, until recently it was thought that the Boeing Company was almost the definite choice. The proposal seen as most likely of success was the "forming of a consortium between Japan, the United States, and the Netherlands," by adding Fokker to Japan and Boeing.

However, at this point, an unexpected "event" occurred. Fokker decided against a tie-up with Boeing and, joining with McDonnell Douglas, announced the MDF 100 (seating 150) development plan.

A reason behind the change made by Fokker was probably the highhanded attitude of Boeing. Fokker wanted a three-part equal division of responsibility for development, production, and sales. It even presented a plan for such a three part division of the market with "the American continent going to Boeing, Europe to Fokker, and Asia to Japan," and would not give an inch. The Boeing Company, in turn would not retract its plan for developing a new aircraft under its leadership. Boeing's new aircraft was tentatively called the B7-7 (seating capacity: 150). Also, there were a number of peripheral projects crowding the docket. Therefore, even if it tied up with Boeing, there was a danger that the project would be delayed in getting off the ground much longer than Fokker had planned.

These concerns of Fokker's greatly worried the Japanese even though they wanted to work with Boeing. MITI's basic position was: "Even if the new YX project is somewhat stretched out, we would like to keep it confined to the 1990's."

It decided that "we will not follow in the tracks of YX." The ministry also declared: "If there is a strong sense of Japan merely being a subcontractor, we will not provide assistance."

The first aircraft in the YX program is scheduled to be delivered by next fall. Orders have already been received for 300 aircraft and it is being called "a best-seller airplane." However, as signified by the name of the new plane, Boeing 767 (seating capacity: 229), Boeing totally dominated the project throughout. Japan and Italy are also participating in the project but their share of investment is only 15 percent each, and they depend on Boeing for everything, including basic design, sales, and support. It would not be an exaggeration to say that the Japanese role is "even less than that of a subcontractor." The Japanese are chiefly in charge of fuselage panels. The technical requirements of Boeing are very strict and a large-scale loss is already expected in the account ledgers. Mitsubishi, Kawasaki, and Fuji, the aircraft body makers, are screaming: "We cannot make this work unless we raise the price by 20 percent."

These aircraft makers are anxious to put an end to the subcontractor role, saying: "In the new YX, we would like to participate in building the main wings and, ultimately, in assembly." However, they are not eager to cut off their relationship with Boeing. The makers' secret desire is to limit the "emperor" role of Boeing and expand their own territory, if even by just a little. Therefore, Fokker's radical "three-part plan" has been supported as a convenient strategy against Boeing. However, Fokker finally dropped out and the Japanese partner selection process is back at the starting point.

Is It Possible To Escape a "Subcontracting Role?"

The effect of Fokker tying up with Douglas rather than Boeing is very great for Japan. Of course, the new "equal partnership" has asked Japan to participate. The conditions are very attractive. An equal partnership of three companies is being proposed. In addition, they say that the Japanese "can participate in development and production of major components of the MDF 100 and, in addition, a jet engine under joint development by Japan and Great Britain will be used in the plane."

These conditions should be satisfying to MITI and the industry. The problem is in sales. There is fear that it may be impossible to be successful in sales competition without Boeing.

To this, Fokker replies that "a movement to get away from Boeing is developing among the airlines." It says that Douglas decided to adopt this project ahead of another one already under way this year because of a request from the airlines. Boeing controls the commercial aircraft market and this means that the airlines do not have a right of choice of new aircraft. Competition between airlines is becoming tougher and all the companies are taking a strong policy of putting special features into their aircraft. Therefore, it is necessary for the users to regain a right of choice. Douglas and Fokker have undertaken a "marriage" in order to get in on this movement to drop Boeing.

It is reported that MITI is showing a desire to accept the invitation of this new combination. This is because there is great danger in tying up with Boeing alone after Fokker, who fiercely supported the Japanese position, has left. It would be a huge burden to fill in the gap left by Fokker. If the request for taking a greater burden of funding is rejected in consideration of Japanese financial conditions, it may be necessary again to suffer to "grief of being a subcontractor" experienced in the three-way American-Japanese-Italian YX project.

However, there is also the following viewpoint. "Even Boeing cannot ignore a tie-up between the Japanese manufacturers and the union of Douglas and Fokker. This should make it possible to carry out profitable negotiations with Boeing."

The important thing is to suppress the tyranny of Boeing. "It is essential to form a profitable tie-up." Behind this posture is "faintheartedness." "No matter what happens, Japan cannot assert leadership. Therefore, it is assuring to have a tie-up that is as advantageous as possible with Boeing because of its great strength in sales." This is probably the real feeling of the manufacturers.

This does not give the impression of a posture of "establishing an independent industry as we approach the 1990's" as proclaimed by MITI. Just as in the previous YX plan partner selection, the Japanese camp conspicuously continues to adopt a passive position. If they truly "want to participate in development as equal partners," the time for decision is at hand.

For this purpose, the tie-up with Fokker and Douglas seems to be the best policy. However, even here, many say: "Under the present circumstances, the Japanese will

be equal partners in name only. There is a strong possibility that they will only be put in a little higher class of subcontracting than in the YX project." This is because Japan has no ability to open markets. Of course, unlike the Boeing tie-up, it may be possible to obtain an equal partnership with the other two companies through persistant negotiations, but the problem is whether the MITI manufacturers can make a decision or not. To put it differently, it is a problem of whether they can face the risks of development, production, and sales. The Japanese aircraft industry is standing at a crossroads. Will it continue to take the easy role of "a subcontractor who meets deadlines and delivers good quality," valued by European and American industry. Or will it take off as a full-fledged aircraft manufacturing industry?

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SCIENCE AND TECHNOLOGY

TOSHIBA TO EMPHASIZE R & D IN ELECTRONICS, ENERGY

Tokyo SANCYO TO KEIZAI in Japanese Vol 35, No 8, Aug 81 pp 80-84

[Text] Toshiba leads the heavy electric industry in four areas—"OA, defense, nuclear power, and ME." Especially recently, it has been involved in R & D in the "two E's"—"electronics" and "energy." Its stock has reached a postwar high and the company structure under president Saba, who is entering his second year as president, is about to realize its potential. (Editorial)

Saba Policy to Spur Nuclear Power

It has been almost a year since Toshiba was reorganized under Chairman Takeo Iwata and President Shoichi Saba.

With the general meeting of stockholders held at the end of June 1980, the Saba era began.

President Saba was born in 1919 in Tokyo and graduated from the electrical engineering department of Tokyo University; he is a so-called "engineer president."

Since this engineer president first appeared at Toshiba, the trend toward hiring engineers as executives suddenly became stronger.

This June, Hitachi Limited appointed Massashige Mita as president, he is a 1949 graduate of the electrical engineering department of Tokyo University.

At the same time, Tsunashida Yamamoto became president of Fujitsu. He is a Tokyo University classmate of president Mita of Hitachi and also a graduate of the electrical engineering department.

Hideo Abe, the new president of Fuji Electric, is also a graduate of the engineering department of Tokyo University. Therefore, with Saba's appointment as president of Toshiba, the top management [of major heavy electric companies] has come to depend strongly on engineers. The move is most typical of Toshiba, whose motto has always been "Toshiba of Technology" and which has always taken the initiative in developing new products. It can be said that Toshiba has ushered in a new phase in management style.

The previous Iwata era emphasized three pillars or principles of management: "selective management," "strengthening of affiliated companies," and "internationalization of business." With the coming of the Saba era, a fourth has been added: "emphasis on technology."

At the core of this fourth pillar are the "two E's."

The "two E's" are energy (nuclear power, geothermal, etc) and electronics (semiconductors, ME, OA, and VTR); however, Toshiba's emphasis is on R & D in these two areas.

In the 70s, when the late Taizo Ishisaka was president, Toshiba's philosophy was one of "management with a high sense of integrity." During Toshio Dokô's presidency, it was "management with emphasis on technology"....

This, however, was changed to "management with priority on profits" when Iwata became president.

During the recession that followed the oil shock, improvement in earnings was the major issue of the heavy electric industry. With Saba's appointment, "emphasis on new technology" has been revived and focused upon. We must say that this is all in response to the needs of the time.

First of all, Toshiba's strength is in its nuclear power department. Its rival, Hitachi, has created four departments--"OA, defense, nuclear power, and ME"--to map out strategies for the eighties. It has also created promotional headquarters.

These are the areas in which Hitachi must catch up with Toshiba--in other words, the areas where Toshiba leads Hitachi.

Toshiba is Japan's largest boiling water reactor manufacturer. To date, it has delivered eight reactors to Japanese electric power companies and holds the number one position in Japan.

The present balance of orders received includes three units--for the Second Fukushima Nuclear Power Plant No 3 and Kashihazaki-Kariu No 1 of Tokyo Electric Power Company, and Onnagawa of Tohoku Electric Power Company. The prospect for future orders is also promising.

In any case, Japanese energy policy has begun to emphasize nuclear power generation which is capable of recycling.

In this sense, we can expect Toshiba to spur the development of its nuclear power department.

President Saba is an expert in the area of nuclear power.

"Already, Toshiba's light water reactor technology is nearing completion. We have nothing to learn from G.E."

As these words indicate, it would seem that in terms of economy and safety, the development of the light water reactor has almost reached an end.

The future task is to apply electronics to all areas of systems control which are still done manually.

If this is to be achieved, human errors that occur occasionally, creating chaos, can be eliminated.

When computerization of the control system is complete, operational mistakes will be eliminated entirely and so will the troubles accompanying selection of plant sites.

In other words, this will brighten the future of nuclear power plant construction and bring an increased volume of work to Toshiba.

Already, computerization of control systems in hydro and thermal power plants has progressed considerably, and Toshiba's system has been purchased by various electric power companies.

The computerization of nuclear power plants will soon play an active role as Toshiba's major weapon during the Saba era.

Toshiba, as we all know, is number one in the manufacture of boiling water reactors (BWR).

Recently, it has begun designing a new BWR in collaboration with G.E. of the United States and Sweden's ASEA-ATOM.

Since the commercialization of this new reactor is near, it will contribute greatly to an expansion of Toshiba's market share.

Toshiba's Overwhelming Strength in Radars

Along with nuclear power, Toshiba has overwhelming strength in radars, which require the most advanced electronics technology of all defense equipment.

Recently, Toshiba became the principal contractor for short-distance surface-to-air missiles (short SAM), which are said to be Japan's most salable weapon along with the BADGE (base air defense ground environment) system X; this is a large contract totaling 300 billion yen.

Toshiba's radar is equipped with a "phased array radar air-work-on system" which represents the world's most sophisticated radar technology; it has been highly evaluated by the Defense Agency.

The Defense Agency is expected to place an order for six sets (four for ground self-defense and two for air self-defense) for fiscal 1981; in terms of a mid-term project estimate, 26 sets are expected to be ordered.

For Toshiba, this means that it would have an ample opportunity in the future to demonstrate its ability in this area as well.

Next comes the battle over the BADGE system.

The current BADGE system was decided on in 1963 as the priority project for the second defense term (1962-66), and has been in force since 1968.

Toshiba competed with Nippon Electric for the right to manufacture the system. But Nippon Electric, which had a license contract with the Hughes Corporation of the United States, succeeded in obtaining the order.

The system was manufactured by Nippon Avitronics, a joint venture firm of Nippon Electric and the Hughes Corporation.

But almost 15 years have passed since then, and the system is now outdated. Therefore, the fiscal 1981 budget allowed for funds to cover selection and equipment expenses for the BADGE system. It is believed that within the year the Air Staff Office will determine the manufacturer who will develop the new BADGE system.

The BADGE system connects a large computer with radar networks distributed throughout the country and detects enemy aircraft approaching Japan.

It involves electronics equipment with emphasis on computers, and the new BADGE system is expected to cost 300 to 500 billion yen.

Because the contract battle is on such a large scale, the activities of Nippon Electric to date and the extent to which Toshiba can attack and reverse the situation are attracting outside interest.

In addition, Hitachi, Fujitsu, Mitsubishi Electric and Oki Electric are also in the bidding. The question, therefore, is to what extent Toshiba can roll back.

This will also be the time to test the managerial skills of president Saba.

Ten years ago, the computer [in the BADGE system] was IBM's. Today, however, Japanese computers have become competitive. In this area at least, the situation is not necessarily favorable to Toshiba.

But since the Defense Agency is said to be considering a joint developer, we must say that the possibility of Toshiba participating in the project is good.

Recently, vice president Tomio Tanatsugu of Toshiba became chairman of the Japan Arms Industry Association.

In the past, Toshiba's products have been used extensively in the electronics equipment of F-15 fighters and P-3C anti-submarine patrol aircraft.

In addition, Toshiba products are found in other aircraft equipment, so Toshiba's contribution in this field is expected to expand in the future.

Furthermore, Toshiba Machine Co Ltd, an affiliate of Toshiba, has been long emphasizing aircraft machine tools. Its future development is of interest to the Toshiba Group.

Toshiba Shows 20 Percent Growth with ME

Along with defense equipment, ME is another area in which Toshiba's industrial strength is demonstrated.

ME stands for medical electronics. Toshiba's application of electronics to medical equipment, as witnessed by such labels as "Toshiba of X-rays" and "Toshiba of Roentgen," has a wide acceptance.

On top of this, due to the development of electronics technologies, its product line has become increasingly diversified.

New equipment such as the following are under continuous development: CT (computer tomography), a supersonic diagnosis system, a patient monitoring device, and an automatic chemical analyzer.

Among these, the X-ray CT and supersonic diagnosis system represent Toshiba's two major ME products, comprising 40-50 percent of all such equipment sold in Japan, by far the greatest share in Japan.

The sales of ME products by Toshiba, the largest manufacturer, for the March 1981 period was 92.6 billion yen, a 20-percent increase over the same period a year ago.

Hitachi Medico recorded sales of 47.5 billion yen, an 18-percent increase.

Shimadzu Seisakusho's sales were 30.6 billion yen, a 10-percent increase; those of Yokogawa Electric Works, 13.6 billion yen, a 14-percent increase.

From these figures, we can see how Toshiba is running ahead of its competitors.

Toshiba's sales, however, for the previous period showed a 23-percent increase, which means that sales dropped a bit during the March period.

Some regard this as a result of the scandal that involved Fujimi Obstetrics and Gynecology, so society is watching ME closely.

But since Toshiba is the leading manufacturer, it is responsible for the widespread use of ME. And as a result of its development of low-cost, full-body CT's, its share in ME sales should improve.

Toshiba's sales for the March 1982 period are expected to reach 106 billion yen, an increase of 15 percent.

Hitachi Medico anticipates 50 billion yen in sales, a 5-percent increase; Shimadzu, 32.4 billion yen, a 6-percent increase. In comparison, Toshiba is trying to be the first in the industry to reach the 100-billion-yen mark.

It is also stressing exports, which have grown considerably in the European markets. Today, its technology is acclaimed worldwide and is on par with that of Siemens of West Germany, considered the best in the world.

It is conceivable that Toshiba will eventually surpass Siemens. There are those who anticipate that Toshiba will, in the next 2 or 3 years, be the world's leader in ME.

President Saba is always shouting, "persistent growth."

Nuclear power, radar, and ME are the three powerful products which Toshiba's engineers have perfected over a long period. These will be its strategic products in the 1980's, outperforming those of its competitors.

The Age of OA Owed to Toshiba's Efforts

Following behind these three major products is Toshiba's industrial electronics.

While Hitachi and Nippon Electric were developing their large computers, Toshiba was threading between them, concentrating on OA (office automation).

Now we are said to be in the age of OA; this, however, is owed greatly to the pioneering efforts of Toshiba. It is also the age in which Toshiba's OA is being recognized.

OA is a system product which mechanizes office work by combining various items of equipment, such as the facsimile, copier, office computer, personal computer, and word processor.

At present it is a 600-700 billion yen market; but it is beginning to show signs of growing into a market as large as that of nuclear power in the 1980's.

Currently, Toshiba is the top manufacturer of office computers, personal computers, and word processors.

Needless to say, Toshiba is the leader in terms of system knowhow that combines these equipment.

In particular, Toshiba is the perennial frontrunner in the area of terminal equipment that meets the needs of a new era. These include OA-related optical character reader (OCR), data processor, and multiple function telephone.

Recently, Toshiba developed the "TR-15," a new automatic zip code reader which reads and sorts out letters even when handwritten and printed codes are mixed together.

The first machine was delivered to the Tokyo Central Post Office.

Prior to this, it was impossible to process both printed and handwritten zip codes simultaneously.

The new model can process 27,000 letters per hour. A semiconductor image element (CCD one-dimensional censor) is used for reading the codes; it is therefore highly reliable.

As can be seen here, what is needed in OA and its related equipment is the semiconductor. As far as IC and ISI are concerned, Toshiba is number three, behind Nippon Electric and Hitachi.

Thus, Toshiba's position as one of the big three is secure; but with an increased production facility it is pursuing the two competitors.

Toshiba has mass-production plants in Oita and Hyogo, local bases in Fukuoka and Iwate, and a research center in Kawasaki.

The recent topic of interest in the industry is the increased production of 64-kilo bits, which is said to be the first generation of super LSI (large-scale integrated circuits).

In October, Toshiba will begin production of 100,000 units of 64-kilo bits per month.

Toshiba's production volume will follow behind Hitachi's 200,000 units, Fujitsu's 150,000 units and Nippon Electric's 100,000 units.

With respect to overseas production, since April last year, Toshiba has made inroads in the United States, in addition to Malaysia, Korea, and Mexico.

Toshiba has been manufacturing 64-kilo bits in Silicone Valley outside San Francisco, and has recently expanded its plant. Things are going so well that it has doubled its monthly production to 2 million units.

The Toshiba plant in the United States began when it "inherited" 100 percent of Maruman Integrated Circuit Corporation's (MIC) stocks; Maruman was a U.S. subsidiary of Manse Kogyo (headquartered in Kawaguchi), not a major Japanese corporation, but a solid one.

MIC was located in Sunnyvale, California, and was a semiconductor manufacturer established in 1976 by Manse Kogyo.

Toshiba's move was an extremely smooth operation designed to lessen the friction in the U.S.-Japan semiconductor war.

This was the second purchase of a U.S.-based enterprise by a Japanese semiconductor manufacturer; the first was Nippon Electric's purchase of Electronics Alleys.

On 4 June, in order to strengthen the production of peripheral computer equipment, Toshiba announced that it will establish a new facility within its Ome plant, which is its major computer plant.

This is because of increased demand for OA products such as office computers, minicomputers, personal computers, and word processors.

On the other hand, OEM sales of printers and magnetic disks have also been excellent. And since high annual growth rates exceeding 35 percent are expected for these items of terminal equipment, the decision to build a new plant was made.

It will be the first time in 9 years that Toshiba will be building a new plant.

The new plant will be a two-story iron-reinforced structure, costing 2 billion yen, and it is expected to be completed in March 1982.

This new plant will increase the production capacity of printers by 2.5 times, magnetic disks 4 times, and floppy disks 3.5 times.

For fiscal 1981, Toshiba recorded 95 billion yen in sales from data processing systems; for fiscal 1982, it expects sales of 110 billion yen. It is for this reason that it decided to move ahead with equipment investment.

Toward Development of a Leading Product in Home Appliances

In the home appliance department, Toshiba is stressing VTR's.

Its monthly production is 50,000 units, which is equal to about 8 percent of the market.

There is room for growth here, since Matsushita, Sony, and Victor are turning out 100,000 units per month.

Judging from the 17-percent market share of its color TV Toshiba's share will grow in the future.

For this reason, this April, Toshiba transferred managing director Shoichiro Watasato from the Heavy Electric Department to head the Light Electric Center.

His predecessor, managing director Junichi Hiyoshi, became the chief of the Toshiba's Technology Department.

Mr Watasato is a veteran of production control, Mr Hiyoshi a specialist in home appliance technology. It is seen that Toshiba's intention is to shorten the time between technological development and final product by combining these two experts.

Herein we perceive clearly Toshiba's desire to develop a lead product for the new age in home appliances.

Toshiba's March 1981 period sales reached 1.5475 trillion yen (1.42767 trillion yen in March 1980), an increase of 8 percent in earnings.

Along with this, the operating profit was recorded at 82.8 billion yen (75.3 billion yen in March 1980), profits at 44 billion yen (41 billion yen in March 1980), an increase of 10 percent in profits.

Profits per share rose to 19.9 yen (18.8 yen in March 1980) and dividends to 14 percent (12 percent in March 1980), an increase of 2 percent.

Hitachi also recorded dividends of 14 percent, or an increase of 2 percent.

Fiscal 1981's consolidated financial reporting based on the above figures would yield 23 yen profit per share for Toshiba, 49 yen for Hitachi.

Therefore, there is still considerable difference between the two.

This is reflected in the value of shares in the two companies.

Toshiba's annual high for 1980 was 250 yen and its annual low was 174 yen.

In 1981, however, the stock rose quickly and it was 314 yen in March, 371 yen in April and 428 yen in May.

The May figure was the postwar high for Toshiba.

Hitachi's stock, on the other hand, stood at 460 yen in March, 585 yen in April, and 690 yen in May.

Waves of investment by foreigners made heavy electric stocks rise, but if we look at the ratios, we see that Toshiba's stood at 19 percent, Hitachi's at 22.3 percent.

From the foreigners' point of view, Hitachi is more appealing. In the future, however, as has already been mentioned, we can expect investors to reexamine Toshiba, whose strength is in "OA, defense, nuclear power, and ME."

With respect to nuclear power plants, an order by Shimokita No 1 of Tohoku Electric Power Company is nearing for Toshiba.

In the area of defense, there will be increased demand, from missiles to electronic equipment for warships.

In April, Toshiba started production of microwave ovens in Tennessee.

It has also decided on a capital increase of 200 million shares offered to the public with payment due this September. For a face value of 50 yen, it will be the largest of its kind in history, and the amount procured, based on current stock value, will total about 80 billion yen, next only to Toyota's 90 billion yen.

Hitachi is also considering a public offering of 100 million shares, but this will take place in the latter half of 1982.

Toshiba's current attempt to increase capital follows the one-fourth capital increase of 1969 and the third person quota capital increase of 52 million shares in 1966; therefore, if this attempt is realized, it will bring excitement to the stock market.

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SCIENCE AND TECHNOLOGY

MITSUBISHI ELECTRIC ACTIVITIES IN ELECTRONICS FIELD NOTED

Tokyo SANGYO TO KEIZAI in Japanese Vol 35, No 9, Sep 81 pp 80-83

[Excerpt] Vigorous Pursuit With Super-IC and VTR

In the era of electronics, Mitsubishi Electric Corporation has the spotlight. Its "talking" NC lathe was a hit, and, in the area of defense equipment, it has taken the lead in the contract battle for the next generation of surface-to-air missiles. It has restructured itself so that it is capable of seriously challenging the leading manufacturers of super-IC and VTR. Finally, it is attracting much attention in the securities market. (Editorial)

Electronics Led the Way

As the core enterprise of the Mitsubishi Group, Mitsubishi Electric's strength lies in its initiative in so-called industrial electronics. This includes pioneering electronics technologies in defense and space related equipment, OA, office computers, and NC machine tools. Particularly in the area of defense, Mitsubishi has recently been attracting worldwide attention; it has great potential for further development.

For example, the percentage of electronics equipment used in the 7.3-billion-yen F-15 fighter is 30, and in the P-3C it is nearly 40 percent.

The business of selling modern military weapons is characterized as an "electronics-computer battle;" needless to say, electronics are being applied rapidly to missiles as well as to tanks.

Mitsubishi's contract with the Defense Agency for the March 1981 period increased by 34 percent and totaled 12 billion yen.

It is said that the Defense Agency's orders for electronics equipment will increase by at least 20 percent in the next 5 years.

The recent big news is the almost certain decision to replace the Nike with the Patriot missile, manufactured by the joint team of Mitsubishi and America's

Raytheon Corp. This is the 1.5-trillion-yen contract battle for the next generation surface-to-air missile.

It is forecast that the profit per share of Mitsubishi stock for the March 1982 period will be 16 yen.

In terms of the consolidated financial statement, it will be 24 yen. Purchases by foreigners have been consistent, and the balance of credit purchase has been reduced by half since the peak period.

We would watch [the stock's climb to] the 400-yen mark closely as Mitsubishi Electric pursues Hitachi Ltd.

The above favorable description is made by Mideo Hirabayashi, executive director of Maruman Securities.

When I was reading CHUNICHI SHIMBUN the other day during a business trip to Nagoya, I noticed the headline "Mitsubishi for Defense and OA" in the "Zubari Shindan" [Exact Diagnosis] column in the securities section; it gave a high evaluation.

Certainly, Mitsubishi these days offers us endless material for conversation; that does not have to be pointed out by the securities industry. The biggest topic recently has been the news, mentioned above, that Mitsubishi and the U.S. Raytheon's Petriod has been selected to replace the aging Nike J as the next generation super-large surface-to-air missile (SAM-X).

As the post-Nike missile, Petriod was in competition with the Nike Phoenix developed jointly by America's Hughes and McDonnel Douglas and Japan's Mitsubishi Heavy Industries, also of the Mitsubishi Group. However, the battle was said to be over when, at the June clerical level U.S.-Japan defense conference held in Hawaii, the United States strongly requested that the Petriod be introduced in Japan.

The outcome can be seen as the result of strong influence exercised by President Reagan.

The Petriod is the missile which the U.S. military commissioned Raytheon to manufacture for the air defense of NATO nations; nearly 20 years have been spent on research and more than 50 billion yen on development.

Because of the request made by the United States, it was informally decided that the Japanese Ground Self-Defense Force will first use the Petriod for four of the eight antiair artillery units.

In addition, it seems inevitable that the Air Self-Defense Force will also introduce the Petriod.

The Air Self-Defense Force has been using the Nike, but since it cannot afford both the Nike and the Petriod, it will concentrate on the latter alone.

As far as missiles go, the practice in Japan had been for Mitsubishi Heavy Industries to be in charge of "air," Mitsubishi Electric in charge of land. However, with the recent move, the roles have been changed and Mitsubishi Electric would assume a superior position.

The report on the Mitsubishi contract appeared as a scoop in NIKKAN KOGYO SHIMBUN on 9 July and attracted the attention of those concerned.

This evoked a great reaction within the securities industry in the form of aforementioned recommendation to invest in Mitsubishi. But on 25 July, NIKKAN SHIMBUN reported that the Self-Defense Agency had decided to postpone the introduction of the SAM-X for 2 years, making the situation rather delicate.

A Joint Plant with Westinghouse of the United States

Another noteworthy item with regard to Mitsubishi Electric, as pointed out in the "Zubari Shindan" column, is the consolidation of its Electronics Division.

In April 1980, the company built two research centers: the Electronics Product Development Research Center aiming at reinforcement of VTR and audio equipment technologies, and the ISI (large scale integrated circuit) Research Center.

Next, in October of the same year the company established an Office Automation Project Room, and in May the Personal Computer Department in the Electronics Division.

Then, in June Mitsubishi announced that in addition to the Electronics Related Project Promotional Division, it would establish an Information Electronics Research Center for R & D of optoelectronics (photelectron engineering).

Since June 1980, when Ninhachito Katayama became president of Mitsubishi Electric, he has been pushing for the expansion and strengthening of the electronics departments.

In particular, the Electronics Related Project Promotional Division was established toward the end of June because of increasing new technologies which could not be covered by the existing five divisions--heavy electric, electronics, machinery & equipment, products, and overseas. Vice president Koji Imaida (born in 1913, joined Mitsubishi after graduating from the Department of Engineering, Waseda University, in 1938) was appointed director of the newly created division.

In addition, Seiji Otani was appointed assistant director of the division, along with the Shigehiko Takahashi of the Home Appliance Department. The latter will retain his former position.

The new division will play the role of strategy headquarters which will plan all aspects of electronics related matters, including technological development, merchandising, and establishment of sales networks.

Mitsubishi hopes to overtake the leaders in the field, Hitachi and Toshiba.

Another big related news item is that Mitsubishi Electric has decided to build a joint plant for integrated circuits in the United States with Westinghouse.

This is because, in its effort to strengthen the previously neglected ISI department, Westinghouse has asked for the cooperation of Mitsubishi Electric, with which it has had a long-time technological tie-up.

The first reason why Mitsubishi Electric decided to agree to the request is that it wished to return the past favor bestowed upon it by Westinghouse; the two companies have been in a technological cooperation relationship since 1923.

Second, Westinghouse has proposed conditions favorable to Mitsubishi--the latter only has to reveal its circuit manufacturing technology and transplant it to Westinghouse engineers. Moreover, while Westinghouse will be responsible for the entire cost of construction of the plant, Mitsubishi will run the plant as well as the research center.

The plant is expected to produce 64-kilo bit (a 5 cubic millimeter chip containing about 70,000 transistors) integrated circuits and super-quality microprocessors which form the heart of a computer.

The proposal was extremely timely, because for some time Mitsubishi had been considering the possibility of expanding its business into the United States. The joint plant will be a plus for both companies.

Mitsubishi's Vigorous Pursuit of Leaders in Production of Semiconductors

In addition, recently the United States has been requesting that Japan lease its advanced electronics technologies to be used in its defense industries. The above-mentioned joint plant is entirely unrelated to this trend, but it is attracting outside attention as a case in which a long friendship has contributed to the smooth running of a joint project.

Be that as it may, Mitsubishi is vigorously pursuing the domestic leaders in semiconductor production.

With respect to the aforementioned 64-kilo bits, as of this October, Mitsubishi will start monthly production of 100,000 units at the Kumamoto plant.

Hitachi, Fujitsu, and Nippon Electric are currently manufacturing 15,000-270,000, 150,000, and 100,000 units per month of the 64-kilo bits, respectively; these three companies are anxious to triple their production during the second half of this year.

In contrast, Oki Electric has been producing 300,000 units since August at its Miyazaki plant. It is likely that Toshiba will reach monthly production of 100,000 units by October.

Mitsubishi Electric's position is that: "Demand from peripheral equipment manufacturers, such as makers of personal computers and terminals, is on the rise. And since this demand is based on cost and performance comparisons, we have decided to enter into full-scale production."

Riding on the wave, Mitsubishi has decided to begin production in the United States.

Already in April 1980, Toshiba built a giant plant with monthly production capacity of 2 million units in the Silicone Valley, outside San Francisco.

In September, Hitachi is expected to follow, expanding its 300,000-unit monthly production plant in Dallas, Texas.

Next spring, Nippon Electric will begin monthly production of 3 million units in Roseville, California. In June of this year, Fujitsu built a new plant in San Diego, California, which is expected to reach monthly production of 500,000-600,000 units.

In the midst of all these activities, Mitsubishi will join hands with Westinghouse, a giant U.S. manufacturer, and enter the semiconductor market. Because of Westinghouse's marketing strength, Mitsubishi is seen as having gained a strong ally in the semiconductor war.

Mitsubishi plans to expand its Electronics Division actively, with the production of semiconductors at its base. One project which merits our attention is its decision to concentrate on the development of interchangeable equipment for IBM computers.

The objectives of this project are to develop new generation models which will replace Mitsubishi's current medium and large models, the COSMO 700, 800, and 900 series, and to market new medium and large model series, all of which will be interchangeable with IBM's large models and software.

The reasons why Mitsubishi is emphasizing the interchangeable series are as follows: 1) Japanese large computer manufacturers, Hitachi and Fujitsu, are producing models that are interchangeable with IBM computers; 2) in order to survive in the large-model computer market, one must have something in common with IBM computers, and this is limited to software; 3) since about 70 percent of the Mitsubishi Group uses IBM's super-large or large computers, it is advantageous to manufacture interchangeable equipment.

Because of this, and for the purpose of developing interchangeable hardware, this year Mitsubishi intends to increase its engineers from 200 to 300 and invest 20 billion yen.

At the same time, it will also move into the production of "personal computers."

A personal computer is a private computer for which demand, in conjunction with the recent popularity of "office automation" (OA) and because it is easy to operate, is growing. Mitsubishi, too, has stressed this market and has revealed its plan to place personal computers on the market by April 1982.

The top personal computer manufacturer in Japan is Nippon Electric. It has greatly increased its production, from 50,000 units last year to 120,000 units this year.

Sharp Electric, the second largest manufacturer, has also doubled its production from 300,000 to 600,000 units.

Behind them comes Toshiba, which is strengthening its production, and Fujitsu, which entered the scene this April.

It is said that Matsushita Communication Industrial will market personal computers by the end of this year. By next January, IBM, too, will reveal its product line in the United States. Sooner or later, it will enter Japan.

Top in NC Lathes

Thus, Mitsubishi has also entered the fiercely competitive personal computer market and is showing signs that it will surpass Nippon Electric, Sharp, and Toshiba.

In any event, we can see that from a brief look at the state of computers and personal computers, each electronics company is intensifying its offensive structure more fiercely than ever.

Another noteworthy area in this field is NC machine tools.

For some time Mitsubishi had been eyeing the automatic machine tool market; with Yamazaki Ironworks, the experienced manufacturer of NC lathes, Mitsubishi has jointly developed and manufactured NC lathes equipped with a talking device. This was a topic of much conversation.

The talking lathe is a convenient machine tool which is capable of carrying on a conversation and responding to commands.

The NC lathe is an automatic machine tool run by a computer and is already in wide use even among small and medium-size factories.

The NC lathe equipped with a talking device capable of handling necessary work orally was the outcome of improvements; it is expected to develop further demand.

A good product always encourages imitation.

The latest news is that this fall, Hitachi and Fujitsu will jointly introduce their first "NC lathe equipped with a talking device."

We must say that for Mitsubishi Electric, which has earned the top position in the lathe field, the appearance of an imitation is proof that others have recognized its raison d'etre.

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BUSINESS DIFFICULTIES OF PETROLEUM INDUSTRY ANALYZED

Gap in Performance

Tokyo TOKI NO KEIZAI in Japanese No 298, Jul 81 pp 95-99

[Article: "Bitter Battle Fought Within the Oil Industry as a Result of Widening Gap Between Enterprises"]

[Text] Settlement of Energy Conservation and Transfiguration of Oil Market

According to a report published by the Agency for Natural Resources and Energy (ANRE) of MITI on 6 June, Japan's 1980 primary energy supply (estimated) was 427.5 million kiloliters (in equivalent oil), a drop of 3.7 percent from the previous year ratio. This was the first time in 5 years, since 1975, that a drop from the previous year ratio was registered. Taking into consideration the fact that the 1980 net economic growth rate was 4.2 percent, this speaks clearly of the success of energy conservation measures taken by the Japanese economy.

However, Japan's energy conservation measures consist exclusively of reducing the oil consumption. The movement of fuel conversion for the purpose of "oil conservation" in the industrial field, in particular, is progressing at a brisk pace. For example, the 1980 oil import was 282.6 million kiloliters, a significant reduction of 10.1 percent compared with the previous year. As a result, Japan's oil dependency came down to 66.1 percent, the level of 1968 (it was 71.4 percent in 1979).

The government is strengthening its basic policy to establish a guarantee of economic security by emphasizing the development and introduction of alternative energy in order to reduce Japan's oil dependence to 56-47 percent by 1990. This policy is in line with the "de-oil" strategy which was adopted at the summit meeting of the oil-consuming advanced industrial nations "to break the link between economic growth and oil." During this process of decreasing oil demand, the demand structure of oil products is expected to change significantly.

The oil industry is a "serial product industry" in which it is impossible to produce only a single grade of oil. In Japan, a high economic growth rate centered around industrial heavy oil was achieved upon conversion to exclusively heavy oil firing by the thermal power generating stations (in 1960, so that Japan's oil products demand was characterized by a very high percentage

of heavy oil. However, as "energy conservation" or "introduction of alternative energy" became more widespread in the industrial field, heavy oil, which was being produced in higher proportion, was clearly becoming oversupplied. In response to a "demand pattern" turning to lighter oil characterized by increased demand for kerosine and light oil instead of heavy oil, the oil industry is obliged to adjust its refining facilities and the type of crude oil used in order to meet the changes in the demand structure. While imported oil has a tendency to contain more heavy oil, the oil industry is faced with a demand structure which favors more light oil. In order to close this widening gap, the oil industry cannot do other than to build various new facilities.

Oversupply of industrial heavy oil and a consequent plunge in its price has worsened the management of those oil companies having a poor balance of oil grades. A large number of oil companies belonging to the national group with weak management foundations, which were already in distress with the ordinary burdens, probably cannot bear any additional investment burdens now. Moreover, the oil companies of the national group which depended heavily on the majors (international oil capital) for their crude oil supply, have tasted the sadness of not having an independent crude procurement system and an oil information network in the face of violent changes in the crude oil supply route as a result of the transfiguration of the international oil market. The majors, which were deprived by OPEC not only of the right to decide the price and volume of production of crude oil but also of a portion of the sales route, have sharply cut the supply of crude oil to so-called third parties, or the non-capital group of oil companies, and routed their crude oil preferentially to the more profitable oil companies of their own group (the foreign capital group).

Thereupon, "the cat (oil company) that can catch the mouse (crude oil) is the good cat no matter whether it is a black cat (foreign capital group) or a white cat (national group)" (head of ANRE) became the order of the day, and a period of real power struggle has begun, in which the ability to procure crude oil on the spot market independently has a direct impact on the operation of an oil company.

Crude Oil Cost and Widening Operation Gap

The percentage of oil product manufacturing cost occupied by the cost of crude oil was approximately 60 percent before the oil shock, and it went up to as much as 80 percent after the oil shock. With the raw material composition rate being so abnormally high, the oil companies are obliged to pass this stiff changeable raw material cost on to the product price.

Today, the crude oil price rise is not only due to inherent factors but also to political factors. A country such as Japan, whose crude oil procurement power is weak, is often forced to swallow an inflated crude oil price, consisting of the official sales price of the oil-producing country plus various forms of premiums, or else rush to buy at a higher price on the spot market influenced by incorrect oil information. The inflated crude oil import cost rooted in the insecurity of supply is shaking the foundations of the oil companies of the

national group which can no longer depend on the majors for the crude oil supply. Especially when the domestic demand for oil products has relaxed, so that it has become more difficult to pass the increase in crude oil cost on to the consumers, the following situation is taking hold: "as the oil crisis subsides, the oil company crisis begins."

The 1980 balance sheet of the oil industry revealed that while the Aramco foreign capital group having a direct tie with Saudi Arabia (Nippon Oil group, Toa Neryo and General Sekiyu) was in the black in the last half period as well as the first half period of the year, the non-Aramco foreign capital group (Mitsubishi Oil, Showa Oil, etc) and the national group each experienced worsening profits in the last half period of the year. Dependence on Saudi crude oil or not made the difference. So it follows that while the Aramco foreign capital group which was able to purchase high grade Arabian light (standard crude oil) at a stable "lower price" was getting fatter, those oil companies which depended heavily on the militant OPEC members during the period of unregulated crude oil price after the spring of 1979 and those which had weak crude oil procurement power were getting pinched.

As the demand and supply are relaxed, each oil company may assign prices to the products reflecting the crude oil cost to its chain, creating a situation of "multiple prices for the same product" due to the "difference in crude oil costs." However, the prices will eventually converge toward the low value. Then, the fact that Saudi light crude oil is cheaper to import than other Middle Eastern light crude oil by 3-4 dollars a barrel (159 liters) will have a devastating effect on the profits of those companies belonging to the non-Aramco group, because a cost difference of 3-4 dollars a barrel of crude oil will appear as a cost difference of 4,000 yen or so per kiloliter of product oil.

In fact, the widening gap between the operational costs of the Aramco foreign capital group and the non-Aramco foreign capital group as well as the national group reflects vividly the differences in the power relationship of the International Oil Fund (industry). Namely, as the OPEC oil price is raised, the group having many oil and gas resources of its own is able to expand its sales and profits further. In fact, an "oil situation" has been created in which a group having a crude oil supply route so that it is capable of getting a large quantity of cheap Saudi crude oil, which occupies more than 40 percent of all OPEC oil export, will have a strong competitive edge even when oil demand is decreasing.

In these circumstances, the U.S. majors such as Caltex, Exxon, Mobil, and Gulf, which have access to Saudi crude through heavy pipe, can establish predominance in the oil business and also take the initiative in matters related to the alternative energy strategy. On the other hand, the British, Dutch, and French groups which have weaker ties with Saudi Arabia are suffering from reduced profits from oil business and are placed in a relatively disadvantageous position even in developing a general energy strategy. The predominance of the U.S. majors is expected to be aided further by the ending of domestic oil price controls by the Reagan administration.

The management gap between an oil company which is able to secure a steady supply of good-quality crude oil and having an investment policy and a sales power capable of adapting to the changes in the product demand pattern and another enterprise which is lacking in these is expected to grow bigger in the future.

The structural changes in the international oil market and the struggle for leadership among the majors will once more bring the law of the jungle that prevails in the oil business into the open. And the national group whose foundation is fragile is very likely to be obliged to reorganize itself anew.

Distribution of Power in the Foreign Capital Group and the National Group

The oil industry of Japan consists of 36 refining and original sales companies (20 foreign capital group and 16 national group) which exist in a disorderly fashion and bring about overheated competition. There are 13 original sales companies (8 foreign capital group and 5 national group), and 7 of them also have refineries. In Japan, the original sales companies distribute oil products usually through the following three routes: first, the "direct sale" to large users; second, "sales through the agencies"; and third, "the other route" consisting of sales via the liaison councils of agricultural and food associations. Another special transaction is (joint) resale among the dealers, with the object of this trade being dubbed "gyotendama [resold gems]." There are approximately 9,400 agencies (wholesalers) dealing mainly in gasoline, kerosine, light oil and lubricating oil. Most of these agencies have special contracts with the original sales companies and wholesale the products to the secondary agencies. Nationwide there are roughly 53,000 gas stations operated by the secondary agencies. The majority of these stations display the trademark of the original sales company so that the group affiliation is clearly visible.

To discuss the distribution of power inside Japan's oil industry, it is divided into eight sections according to the conditions of capital cooperation. These are four foreign capital groups (Nippon Oil, Shell Oil, Esso-Mobil, and Mitsubishi Oil) and four national groups (Kyodo Oil, Shukko Industries, Maruzen Oil and Daikyo Oil and its subsidiaries). The 36 companies of the oil industry may be grouped roughly as follows.

The foreign capital group:

The Nippon Oil group (in cooperation with Caltex) consists of Nippon Oil, Nippon Oil Refinery, Koa Oil, and Nihonkai Oil. This group constantly maintains approximately 17 percent of the sales share.

The Shell group consists of Shell Oil, Showa Oil, Toa Oil, Showa-Yokkaichi Oil and Seibu Oil. Toa Oil used to be a main force member of Kyodo Oil of the national group; it became a consigned special refining company of Showa Oil in 1979, when it was transferred from its parent company C. Itoh & Co to Showa Oil. However, crude oil is supplied to Toa Oil equally by Showa Oil and Kyoseki Oil.

The Esso-Mobil group consists of Esso Standard Oil, General Sekiyu, General Oil Refinery, Nansei Oil, Mobil Oil, Kyokuto Oil Industry, Toa Fuel Industry, Kignas [phonetic] Oil and Hiami Oil Refinery. General Oil was originally a sales company of the Mitsubishi group. It left Mitsubishi in the spring of 1979 and undertook capital cooperation with Esso Eastern.

The Mitsubishi group (in cooperation with Getty Oil) consists of Mitsubishi Oil and Tohoku Oil.

The national group:

The Kyodo group consists of Kyodo Oil, Nippon Mining, Toa-kyoseki, Ajia-kyoseki, and Fuji Oil. Kagoshima Oil, belonging to a refinery complex, has also joined the Kyoseki group. Kyoseki Oil, founded in 1965 as a "quasination policy company," was a combination of "an oil company without a refinery" and "an oil company without a sales department," so the company could not keep pace with other companies of the group and did not do very well in spite of the all-out support rendered by MITI. Following the takeover of Toa Oil, which was loaded with an accumulation of debts, by its business rival Showa Oil, as mentioned previously, in January this year, the problem concerning the capital cooperation between Daikyo Oil and Ajia Oil was solved within 7 months (Daikyo bought 48.7 percent of the Ajia stock from Mitsubishi Chemical Industries). Ajia Oil thus left the Kyodo group and joined the Daikyo group. Two of the "three arrows" comprising Kyoseki at its inception were withdrawn, and the image of "Nikko-Kyoseki" is getting stronger.

The Shukko group consists of Shukko Industries, Okinawa Oil, and Toho Oil. Shukko as a single enterprise has the largest crude treating capacity in the entire industry. As a group, it holds approximately 15 percent of the sales share; alone, it occupies the second place nationwide. Shukko used to purchase crude oil from a number of majors including Exxon, Gulf, and BP. Its flexible crude oil purchasing policy caused trouble during the oil shock. Therefore, by establishing an office in Kuwait it is making an honest effort to reorganize its information collecting system, to cultivate the oil men, and to improve communications with the oil-producing nations in order to shape up its crude oil procurement system. The true power of Shukko is said to be so strong that it does not need the assistance of a trading company.

The Daikyo group consists of Daikyo Oil and Ajia Oil. In addition to having business cooperation with Fuji Industries of the national group which deals mainly in refining of heavy oil and lubricating oil, Daikyo Oil also handles the sales of a portion of oil products manufactured by Kagoshima Oil and Fuji Oil. Daikyo is the number three enterprise of the national group and is respected for its steadfast management. It has also kept a very close relationship with the Industrial Bank of Japan in matters related to personnel as well as capital. It is at the nucleus of an idea concerning the reorganization of oil companies of the Industrial Bank group. On the other hand, for the time being, although Ajia Oil belongs to the Daikyo group as far as capital is concerned, it is obliged to sell all or more than half of its products through the Kyodo Oil outlets, a desperate measure.

Another group consists of Kyushu Oil, Taiyo Oil, Nippon Paraffin Refinery and Teikoku Oil. Kyushu Oil was brought face to face with a grave situation: a complete stoppage of crude oil supply to Japan by BP and a severe cutback in crude oil supply by CF (French oil) and Exxon. It now relies on the large trading firms for its crude oil supply. Confining its sales regions to the Tokyo and Kyushu areas, Kyushu Oil is known for the efficient management carried out by a small number of crack units. However, as long as it has a crude oil purchase bottleneck, it is questionable how long it will be able to maintain its independence. Japan's largest paraffin producer, Nippon Paraffin Refinery, which belongs to the Japan line, is building up a close relationship with a Koa Oil, which belongs to the Caltex group. Teikoku Oil remains to the end Japan's number two oil and gas manufacturing company, and its crude oil refining share is only on the order of 0.1 percent.

Consideration of Reorganization and Conception of Japanese Majors

The problems tackled by the oil industry go beyond those related to the 36 oil refineries and original sales companies, because this basic energy industry involves, in addition to the government, the organizations responsible for maintaining a stable crude oil supply such as the consolidated trade company, Petroleum Public Company and Oil Development Company, together with the import and sales companies of LPG, the financial circles which take in approximately 600 billion yen a year in interest from the oil companies, and the maritime transportation companies which carry 90 percent of the primary energy consumed in Japan. Therefore, whenever "reorganization" of the oil industry has come up, not only those directly involved but also those indirectly involved have been caught in a whirlpool of consideration and apprehension, and no large-scale reorganization plan could progress beyond the state of a "blueprint."

Nevertheless, in order for Japan's oil industry to be able to tackle many difficult problems in this period of excitable international oil situation, and to plot survival strategy by intensifying decisions on operational intentions, the industry must not only promote inter-enterprise cooperation in order to increase efficiency and rationalization but also undertake the task of reorganizing the industry the merging of enterprises. Since the first oil shock, various business cooperation deals have been worked out in oil industry circles by going outside the boundaries of the conventional groups. The time has come when the narrow groupism is no longer fashionable. "Gentle business cooperation" has been pushed forward one step further by both the foreign capital group and the national group, and cooperation in the field of crude oil import has ranged from business cooperation, jointly owned tank locations and jointly owned oil tankers, to planning for the construction of jointly managed refineries. Therefore, reorganization of the industry involves untangling the web of these complicated relationships. Some threads must be strengthened while others must be cut. A member enterprise of a group concluding a capital cooperation pact with a "business rival," such as the drama played by Toa Oil and Ajia Oil breaking away from the Kyodo group, may be construed as a prelude to an honest to goodness drama of reorganization which has been smoldering for a long time.

MITI, which plays the major role in the drama of industrial reorganization, has two mainstreams--a "national faction" and an "international factor"--and under an administrative directive without clearly written law as its

backing, many cases in which sharply different views were taken by the two factions have cropped up. Partly because the "international faction" has been in the mainstream recently, MITI has made its stand clear: "It will no longer shoulder the burden of ordering the reorganization, but will wait for the time to ripen in the private sector." It appears that there was an intention to lead the oil industry, which is like a jungle, into the "open."

However, the event will not take place according to plan if the weak constitution of the national group oil companies, which are expected to be the nucleus of the consolidated energy strategy, is exposed too plainly to view. In the meantime, the ministry will watch closely the natural progress of the inter-enterprise cooperation which is to mend the overly competitive nature of the industry. Under the premise that in tackling such a gigantic theme, governmental assistance, backing, regulation and inducement are indispensable, MITI should take advantage of this opportunity, when a sweeping change in the present defective "oil industry law" is to be implemented, to reorganize the scattered oil companies into groups, each consisting of three or four companies, by promoting conversion to a consolidated energy enterprise and cooperation with the oil-producing countries, so that a domestic system (new oil policies) which is capable of coping with the changing international oil situation may be built. If this were done, it is even imaginable that the entire national group of oil companies might be reorganized and wrapped up into a single unit depending on the situation of crude oil.

On the other hand, we are convinced of the tremendous persevering strength of the U.S. majors, and the voices advocating formation of an international cohesive company (Japanese major) which would be capable of developing long-range energy strategy are getting stronger. Since the revision of the "Petroleum Public Corporation Law," the Petroleum Public Corporation has now become an organization in possession of the functions of a cohesive company. Therefore, there is a plan to form a joint "public corporation - Japanese major" by combining the Kyodo group with the public corporation, with the latter as the nucleus. In any case, the outlook appears to be filled with difficulties.

Industrywide Reorganization

Tokyo TOKI NO KEIZAI in Japanese No 298, Jul 81 pp 100-103

[Article: "Destination of the Industrywide Oil 'Reorganization' About Which Only Desk Theories Have Been Heard So far"]

[Text] Oil provides 75 percent of the primary energy consumed in Japan, and 99 percent of the oil is imported. Therefore, the performance of the oil industry is constantly affected by crude oil procurement, refining and sales volume, and the exchange rate movement. Recently, the effect has become even more pronounced.

Take those companies which settle their quarterly accounts once a year (Nippon Oil, Maruzen Oil, Mitsubishi Oil, Koa Oil, Fuji Industries and General Sekiyu), for example. Their operating profits on a half-term basis in the previous quarterly mid-term settlement of accounts in September was 6.7 times greater than the same period of the previous year, but the latter half-term hit a depression and an overall loss in profits was experienced.

Originally, the significant increase in profits realized in mid-term was due mainly to a profit on the exchange rate difference. Except for the foreign capital group (especially the Aramco group), which was able to purchase crude oil relatively cheaply, all the other companies were almost in the red economically. In the latter period, the rise in crude oil price was accompanied by a bearish demand, and while the "price rise reflecting the cost standard" implemented since February this year has not yet had time to sink in, bitter competition in gasoline and the intermediate products ensued, and the business performance could not help but become sluggish.

The 1981 business performance, in contrast to the bright crude market, is full of pessimistic material. Although the domestic fuel oil demand is expected to pick up again, large growth cannot be expected. The "C-heavy oil bottleneck" cannot be expected to be resolved soon, so it is going to have an adverse effect on product prices. In addition, as a result of the high interest rate in Europe and America, the exchange rate of yen remains low, so that an exchange rate differential advantage cannot be expected either.

Indeed, individually, a significant difference has surfaced between the foreign capital group and the national group, influenced strongly by the source of crude oil. The foreign capital companies of the Aramco group are especially powerful. For example, according to the settlement of accounts made in December last year, the total sales volume of Esso Standard Oil amounted to 1,069,600,000,000 yen (an increase of 54.9 percent over the previous year ratio) with ordinary profits of 42.5 billion yen (an increase of 218 percent over the previous year ratio), setting a historic high record. The dividend rate also doubled, from 48.5 percent per year in the previous period to 98 percent per year in this period. Mobil Oil, like Esso, also set a record high in the total sales volume of 1,117,200,000,000 yen (an increase of 55.0 percent) and ordinary profits of 33.2 billion yen (an increase of 61.0 percent). Shell, as a non-Aramco member of the foreign capital group, did not fare so well. According to the settlement of account of the oil department of the Shell group in Japan (Shell Industries, Shell Oil and Shell shipping jointly), in spite of a rise in the total sales volume, which came to 1,441,200,000,000 yen (an increase of 45.2 percent), as a result of the increase in the crude oil price their ordinary profits were only 10.9 billion yen (a decrease of 22.4 percent).

These trends have become very conspicuous among Japan's oil companies. For example, the ordinary profits of Nippon Oil of the foreign capital group dropped from 75 billion yen in the mid term, to approximately 35 billion yen in the last term; and General Sekiyu, from 21.7 billion yen to 6 billion yen. Yet these were the relatively mild cases. In contrast, Mitsubishi Oil of the same foreign capital group changed from 33 billion yen into red figures, while Maruzen of the national group fell in one swoop from 13 billion yen in the black to 30 billion yen in the red.

The oil refining industry today is no longer a facility industry which puts emphasis on the operation, with 94 percent alteration expenditure and 9 percent fixed expenditure, but is considered a "simple processing industry." The best policy to increase profits is to secure a large quantity of cheap crude oil.

However, according to industry circles, the difference in crude oil cost between the Aramco group and the non-Aramco group comes to 3-4 dollars a barrel. With this much difference in the crude cost, it is unavoidable that the difference in enterprises will grow even greater. Take the sixth oil price upward adjustment implemented in December last year, for example. The largest was 9,500 yen per kiloliter implemented by Kyodo Oil, and the smallest was 4,900 yen per kiloliter by Mobil Oil--a gap as big as 4,600 yen.

Kyoseki is by no means an isolated case; every company of the national group which does not possess an independent crude oil source is in the same boat. The national group has had to rely on the more expensive DD crude oil or the spot market crude oil, for which the price has remained inflated. Thus it is quite evident that the national group has lost its competitive edge.

Daikyo-Ajia Coalition as a Detonator

Amidst all this, the oil industry reorganization, which had been talked about frequently but had never materialized, loomed large. According to a report published by the Oil Problem Investigation Commission of the LDP in January this year, a sweeping reform of oil policy will be implemented, and at the top of this proposal was: "Reorganization of the oil industry will be pursued boldly." MITI, too, made public a policy in February: "Reorganization of the oil industry and strengthening of its constitution will be promoted by joining three or four companies as a group without distinction as to foreign capital group or national group."

The first act of the drama is already under way quietly and gradually. First of all, General Sekiyu of the national group joined the Exxon system, one of the world's greatest majors, in early 1979, and a coalition of Maruzen Oil and Kanzai Oil was formed in October of the same year. By the end of the year, the management rights of Toa Oil and of Toa-Kyoseki of the Kyoseki Oil group were transferred, respectively, to Showa Oil of the Shell group and Nippon Mining of the Kyoseki group. On the other hand, Ajia Oil of the Kyoseki group established an overall business cooperation including crude oil procurement and refining with Daikyo Oil, and the relationship further developed into capital cooperation by January this year.

For the time being, Ajia Oil has been obliged to take this "desperate measure" of selling the greater part of its oil products through Kyodo Oil as before while aligned with Daikyo Oil on matters related to capital. However, this irregular arrangement is not expected to last long. These two companies may gradually deepen their cooperation in the refinery and sales departments, and under certain circumstances, may even merge.

Daikyo-Ajia Oil has a daily refining capacity of 480,000 barrels, amounting to more than 8 percent of the refining share, and comes to occupy third place in the national group, after Shukko Industries and Kyoseki, excluding Maruzen Oil. This has had a significant impact on companies like Maruzen, Fuji Industries and Taiyo Oil, which are suffering from low profits as a result of weak crude oil purchasing power and excessive debt. The future of these companies, as well as of Mitsubishi Oil and Showa Oil, which belong to the non-Aramco foreign capital group, are being watched closely.

What is surprising in this case is the move by the Industrial Bank, which is the main bank of Daikyo Oil. It has been persistently rumored that it was the Industrial Bank which acted behind the scenes in the Daikyo-Ajia coalition. The rivalry between Kyoseki and Daikyo over Ajia Oil appears to have a strong coloration of a "war of representation between MITI and the Industrial Bank." President Nakayama of Daikyo insists: "Our company has never acted according to the command of the Industrial Bank. Besides, the Industrial Bank is the main bank for both Daikyo and Kyoseki, so it would not take sides."

However, the Industrial Bank has its say in business circles because of its special position in the financial world. In fact, in the past it was instrumental in the reorganization of iron and steel, maritime transportation and automobile industries. The leader of the bank made his views quite clear: "It is desirable to reorganize the oil companies of the national group into a few groups, consisting of Shukko Industries as one group and two or three other groups formed from other companies." In fact, the idea concerning a Maruzen-Daikyo-Ajia coalition was advanced on the initiative of the Industrial Bank. The drama unfolded by the capital cooperation between Daikyo and Ajia is no doubt an extension of the idea advanced by the Industrial Bank, so the future of Maruzen, which is struggling to rebuild, is being watched closely.

The Dreams of "Japanese Majors" Die Hard

The other driving force for the reorganization, needless to say, is MITI. To be sure, MITI's stance toward reorganization has changed significantly over the past 10 years. The wait-and-see attitude taken by the ANRE during the recent Daikyo-Ajia coalition speaks of the changed situation, in which the government agency cannot afford to be completely pro-Kyoseki.

Historically, the consolidation of Kyoseki argument reached its peak when Minoru Masuda (now consultant to the Bank of Tokyo) was the secretary of the ANRE with the "nationalization of oil company argument" proposed by then president of Kyoseki, Ryutaro Hasegawa. This argument advocates the consolidation of both refining and sales of Kyoseki by transferring the oil stocks of Ajia Oil and Toa Oil to Kyoseki in order to strengthen direct control over the refining companies of Kyoseki. However, Nippon Mining, which was obliged to separate minerals from rocks, objected, and the plan was dropped by the time, the baton was passed from Masuda to Hashimoto (now consultant to the bank of Nagasaki) as the secretary of ANRE around 1976.

Later on, the policy was changed clearly during the term of secretary Tenya (from June 1978 to August 1979, now MITI councilor). During this period, the "Kyoseki Mistake Argument," which held that the organization of Kyoseki in itself was a mistake, sprang up and the traditional policy of protecting the national group while being hostile to the foreign capital group was turned around 180 degrees: "The cat (oil company) that can catch the mouse (crude oil) is the good cat no matter whether it is a black cat (foreign capital group) or a white cat (national group)." Crude oil procurement became the most urgent problem since the second oil shock, and we could not afford the luxury of discriminating between the national group and the foreign capital group.

When the oil policy of MITI changes, Kyoseki cannot help but change. In fact, the change has already begun to take place. The change is in the direction of breaking off from the original sales format and establishing the leadership of the Kyodo group by procuring crude oil by itself and distributing it to the refining companies. Under the leadership of President Obori, Nippon Kyodo Genu was made a subsidiary company last year, and an import department was newly organized. Early this year, a London office was opened, and a system for securing DD crude oil is taking shape at a rapid pace, and remarkable results have been achieved. The greatest victory so far includes a contract to import Saudi Arabian crude oil at the rate of 150,000 barrels a day for 31 months starting in June last year.

This "Obori crude oil" amounts to 20 percent of the crude oil processed by the Kyoseki group, so that the crude oil cost for Kyoseki today, excluding the foreign capital companies of the Aramco group, is lower than Maruzen, Shukko, and Daikyo of the national group.

However, there are some who raise the question of the "Kyoseki eight-item notification" published in August 1969 with regard to the functional expansion of Kyoseki. There are also voices criticizing the "Obori crude oil" saying: "MITI must be working in the shadows. The GG crude oil of Saudi Arabia has been changed to DD crude oil for the Kyoseki group in Japan. Sooner or later a problem will develop."

However, in today's oil situation, "anybody who is capable of securing cheap oil belongs to the government army." Even those companies belonging to the foreign capital group would suffer cutbacks in crude oil supply if the trading rights of the parent company were revoked by the oil-producing countries. The crude oil supply to the national group which does not belong to any system was long ago reduced drastically by the majors, and the procurement of DD crude oil became the most urgent business. Any company incapable of doing this may not be able to survive, and will therefore be obliged to join hands with those who can. Whether such a coalition will take the form of a merger or a looser co-operation depends entirely on the circumstances. No doubt Kyoseki has taken action in anticipation of such a period.

Therefore, reorganization in the future will no doubt address itself to dissolving production-sales gaps, but the crude oil procurement power will remain the most important factor. The greatest motivation for Daikyo to form a coalition with Ajia lay in the fact that a small (crude processing) capacity constitutes a great handicap in negotiating the DD trade with the oil-producing countries.

Moreover, before consolidation, Ajia Oil was to receive 40 percent of the total oil supplied by Mobil over a period of 18 years, beginning in 1973. The fact that Ajia Oil was in such a relatively favored position was probably another attraction.

The time has come when reorganization cannot be discussed without touching upon the upstream (crude oil development). In fact, reorganization of the downstream (sales and refining) is a minor affair compared with the violent movement upstream.

According to well-informed circles, an idea concerning the unification of Petroleum Public Corporation, Oil Resource Development and Arabia Oil, or unification of Japan's oil-development business, is gaining popularity in part of MITI. This may be called a "great petroleum public corporation design." This new public corporation would also handle the GG crude oil, the supply of which is expected to increase in the future, and it would be positioned at the center of the upstream department of Japan's oil industry.

Of course, if this upstream company were formed, a downstream company as its receiving end would become necessary. In the present circumstances, Kyoseki would be highly likely to become this receiving end. If so, it is also probable that the Kyoseki group would be expanded further, and the participation of other companies might also take place. If so, the dream of "Japanese major design" held so long by the bureaucrats of MITI might become a reality after all.

On the other hand, there is a movement centered around the Industrial Bank which holds: "Doing so would diminish vitality and there would be a danger of it (the new public corporation) becoming the second Kokutetsu (national railway). The public corporation should support the private sector by raising the limit of investment and funding," thus insisting that reorganization of the oil industry be carried out in such a way as to vitalize the private sector. The trend set by the Daikyo-Ajia coalition may unite other companies of the national group and a second Kyoseki group may be formed.

Even Nippon Oil Cannot Be an Exception?

However, even the companies belonging to the foreign capital group are not necessarily secure as far as crude oil procurement is concerned. Therefore, depending on the turn of events, some of these companies may have to throw themselves into the whirlpool of reorganization. The events evolving around Okinawa Oil Refinery which, after its crude supply from Gulf was cut off, became a subsidiary of Shukko Industries (originally, Shukko and Gulf owned 45 percent each), is symbolic of the things to come. The move made by Fuji Oil in July last year, making Arabia Oil the chief shareholder of the third party allotment, was carried out with an eye to securing a stable crude oil supply.

In this sense, even Nippon Oil is not outside the boundaries of reorganization. Last year when a "significant cutback in crude oil supply by Caltex" became the topic of conversation, a rumor was circulated among some people that "Caltex might be withdrawing capital from Nippon Oil." Although this report turned out to be no more a rumor, it is a fact that Caltex has for some time urged the Nippon Oil group to "try to achieve independent crude oil procurement." Therefore, Nippon Oil opened field offices in London and the Middle East last year and began to gather information and to secure DD contracts. Since it relied completely on Caltex for its crude oil supply for so long, it lacks the business showing, so there is a world of difference between its pipelines to the oil-producing countries and those of Shukko. Let us assume that Caltex were to break off from Nippon Oil; where could Nippon Oil go?

"Nippon Oil is not on good terms with the companies of the national group, but it is on good terms with the Petroleum Public Corporation because of its business showing in oil development; if it severed connection with foreign capital, it would probably buy the idea of Japanese major design" is the view held strongly by many. The addition of Nippon Oil, which is famous for its exceptional sales power, to the "new public corporation" would make the latter doubly powerful. To be sure, this is merely a conjecture based on the unlikely assumption that Nippon Oil might disassociate itself from the foreign capital group.

Another argument that has been proposed concerning Nippon Oil is its merger with Maruzen. This idea is based on a belief that no one except Nippon Oil is capable of absorbing worn-out Maruzen. The idea is: after separating Maruzen's two low productivity companies--Matsuyama and Shimazu Refineries--from Maruzen as a separate company, Maruzen would be merged with Nippon Oil. The main bank of Maruzen--Sanwa Bank--is said to be enthusiastic about this scenario. If Nippon Oil were to embrace Maruzen, its sales share would exceed 25 percent, so it could become a stabilizing force of the industry. The question, however, is what to do about the crude oil supply. The supply from Caltex cannot be expected to increase beyond the present level, so it is up to the DD crude oil procurement power of Nippon Oil itself. Therefore, in the present circumstances, the chance for realizing this design should be considered small.

In any case, various oil companies, including the national group, whose operational foundation is crumbling under their feet must try to strengthen it first of all, and they must consider the option of reorganization in earnest as one of the possible survival measures. There is no knowing what impact this will have upon Japan's national economy.

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SCIENCE AND TECHNOLOGY

PROBLEMS OF CAUSTIC SODA INDUSTRY IN CONVERSION DISCUSSED

Tokyo KEIZAI TENBO in Japanese Vol 53 No 16 1 Sep 81 pp 60-63

[Text] Regardless of whether it is operating in the red, a Japanese soda company must make the conversion away from the mercury method by 1984. The larger makers have other interests and some margin of operation, but the medium and small makers are in a quandary trying to obtain capital to this end. It may be said that they will have to make an all-out effort. This situation makes imperative an industry-wide reorganization, but the difference between the different level companies is the cause of the situation, and the all-out cooperation which Asahi Glass has put into actual operation with Hokkaido Soda is a model case. A survival of the fittest reorganization seems to be in the making.

Ripples of the Asahi Glass-Hokkaido Soda Agreement

On 18 July last year the newspapers broke the news that Asahi Glass had taken over the operation of Hokkaido Soda, and it was reported that all the companies in the industry were agog with the news. This was because the largest maker of them all, Asahi Glass, regarded as the "eye of the typhoon," had finally made its move.

In the midst of the dire necessity for an industrywide reorganization due to the change in manufacturing method targeted for 1984, this is not only the first move in an actual attempt at this change but it also represents a trend for weak makers to be absorbed by industries with strong marketing power and technological strength rather than the weak banding together, and those concerned are noting this.

Let us now look at the relationship between Asahi Glass and Hokkaido Soda. Needless to say, Asahi Glass is the top industry in the caustic soda field and accounts for 9.2 percent of the total production. Furthermore, it is not only engaged in production of caustic soda but it is also a high-yield industry, being a top glass maker, and has outstanding physical facilities.

In contrast, Hokkaido Soda, which was established in 1959 through capital advanced by industries located in Hokkaido such as Sanyo Pulp, Oji Paper, and Nippon Light Metal together with the Hokkaido Agency, is engaged purely in the production of caustic soda and chlorine. Before Hokkaido Soda was established, all caustic soda and chlorine had to be brought in from Honshu, but the impediments to transportation during the winter months caused such inconvenience that there was a joint capital subscription by concerned parties, making this a so-called province planned industry.

Initial operations were at the Horobetsu plant (monthly production capacity 2,600 tons) in Noboribetsu city where operations went smoothly, but a new large electrolytic facility was constructed in the form of the Kubomaki plant (monthly capacity 13,700 tons) in anticipation of the conversion law and increased production. This was accompanied by sales instability, financing problems, and cost increases that wreaked havoc with its business record, and it had accumulated a total debit of more than 3 billion yen as of the end of September last year.

This was why concerned parties requested all-out support from Asahi Glass. According to some sources, Asahi Glass agreed to advance 200 million yen in capital in a third party role to become the second largest stockholder and take over product marketing rights as well as responsibility for actually running the business. At the same time, it was to introduce technological direction aimed at lowering the production cost of chlorine, which is produced along with caustic soda, and to take over the production of chlorine from Hokkaido Soda, which had been holding down production because of low demand, and thereby raise the operating efficiency.

With this overall cooperative process the production sites for soda and chlorine controlled by Asahi Glass will now include Hokkaido as well as Kanto (Chiba, Kashima), Kansai, and north Kyushu, giving this company a system extending over the entire country as well as increasing its share of the national level to 13.2 percent.

Weakness in Having Excessive Facilities Longlasting

Even so, there is not expected to be any concerted opposition to this tieup, which spans the framework of cooperation, capital and financial areas, and it seems to be pointing the way toward other impending consolidations. Now, why is an atmosphere of reorganization being cast over the soda industry? One of the reasons that can be cited is the trend for the soda industry to build excessive facilities while being a low profit industry.

Ever since the first oil shock, demand for soda has been crawling along at a rate of about 3 million tons per year. On the other hand, the production capacity is on the order of 4.5 million tons, and the present situation is that the industry is operating at about 60 percent of capacity.

There are 34 makers in this field spread over the entire country, but all the large makers are not limited simply to the production of soda, and they each have a share of less than 10 percent, making for a dogfight situation and of necessity putting the industry itself in a situation difficult to resolve.

At the same time, movements in the demand for chlorine which is produced along with the soda can sometimes result in excess soda or even a lack of soda. Since last year, the demand for chlorine by vinyl chloride makers, which represent the principal outlet for chlorine, has been unstable, and excess chlorine accompanied by lack of soda is the situation that has continued. In other words, the tie-in with the chlorine produced at the same time has made supply adjustment extremely difficult.

In addition, the soda demand sources are not always reliable. Industries such as chemically produced artificial fibers, stable fiber, paper, pulp, aluminum, and sodium glutamate are in a depressed state, and even though this is a basic chemical, any increase in volume is taking place at a very slow tempo.

Now, the factor most responsible for making the soda business such a low-profit business is that soda itself has very low add-on value. As is common knowledge, caustic soda is produced by the electrolysis of salt water, and about 50 percent or more of the production costs go into the electric power consumed. This is a model multiple-energy-consuming type industry. In other words, it is an industry which bears the full brunt of the high cost of electric power, and while the industry on the average produces nearly 60 percent of its own power, this, too, is beset with the high cost of oil. As a result, the industry has poor international competitive strength, which is to be expected. The need to use electric power at the highest cost in the world is an extreme handicap, and the advent of the Dow Chemical Company of the United States into the Japanese area comes from such a background.

Dow Chemical has indicated its plans to introduce 200,000 tons of soda per year along with ethylene dichloride (EDC) and vinyl chloride monomer type chlorine family products in Japan, and it is said to be planning to construct tank facilities in Japan to store these products by 1983. Its strategy is that it can compete even though it has to ship its products from the United States.

A certain industrial executive said: "I do not believe that the effect of Dow's advent will appear too great, but it becomes necessary for the Japanese makers to at least undertake CIF, or in other words, wield a large knife to pare costs down to a level at which they can compete on an international level. If this cannot be done, there will be a catastrophe in price and statistics. Any maker with resolve must expand facilities at the time of conversion and pull his costs down."

To be sure, it is said that "Asahi Glass as the leading company is capable of competing on an international level even with the barrier membrane method, and it will be even more capable with the ion-exchange membrane method." On the other hand, this situation is limited to a large industry with well-established in-house technology, and it may be said that the majority of the industry is in a state in which it has no international competitive strength.

The situation at present is that there is not only excessive competition between domestic makers, but external pressures are also beginning to mount.

The Impending Limit To Conversion of Manufacturing Method

One of the factors said to be spurring reorganization is the problem of conversion in manufacturing method. This problem of conversion in manufacturing method from the mercury method to the barrier membrane method and then to the ion-exchange membrane method is associated with the deadline "by the end of 1984." It is accepted that the mercury facilities will all be converted by that time, but the finances involved in this conversion are monumental, and this is thought to be tied in with this industrial reorganization concept.

First of all, taking a look back at the history of this conversion in manufacturing method problem, it was 8 years ago. In 1973, when the government decreed the plan to convert plants operating with the mercury method to the barrier membrane method, after this decree, the industry was to convert two-thirds of its capacity from the mercury method by FY-81 in a first-stage effort. The remaining one-third of the facilities are to be converted by 1984 in the second-stage conversion.

On the other hand, the barrier membrane method which was adopted in the first stage developed problems involving the quality of the caustic soda it produced as well as energy cost, and the new ion-exchange membrane method is coming to the fore. This new method produces a product which is not inferior to that of the mercury method but also incorporates the advantage that its energy costs are 15-20 percent lower, so that it has come into the limelight, and conversion to the ion-exchange membrane method rather than the barrier membrane method is at present the mainstream effort.

Only five companies--Asahi Chemical Industry, Asahi Glass, Tokuyama Soda, Kanegafuchi Chemical Industry, and Toyo Soda--have developed this new technology, and the other companies have fallen into the situation that they must rely on these companies for the technology.

According to a survey by the Japan Soda Industry Association, of the 21 companies which still use the mercury method in their operations, with the exception of two large diversified industries, the remaining 19 companies will require a total of 28.5 billion yen in fixed costs per year if they completely convert from the mercury method to the ion-exchange membrane method, and the conversion will completely wipe out any profit.

This is why this conversion will not be completely satisfactory except for a fraction of the large makers such as Asahi Glass, according to present estimates. Even the Ministry of International Trade and Industry says: "Almost all of the industry is hoping for total conversion by 1984, but there are some who will balk at this conversion and content themselves with simply eliminating their mercury facilities."

To be sure, the presently used mercury method facilities are closed affairs which have eliminated the risk of creating pollution problems, but on the other hands the manufacturing process itself has reached the stage where the optimum technology has been achieved. For example, the SPE method, which is considered superior to the ion-exchange method and which was developed by the Italia Daler Company, has come to the fore, and there are some who in analyzing the situation say that this could be a major factor which will greatly delay this conversion.

In any event, this deadline is approaching, and each maker is beset with the problem of what to do with his remaining mercury facilities. If the conversion is to be made, the time to do so is rapidly approaching.

On the other hand, there is the feeling that "the companies which will achieve any great benefit from conversion to the ion-exchange membrane method are possibly only Asahi Glass, Toyo Soda, and Tokuyama Soda, and all the others eventually will be wiped out" (industry communication) pervading the present situation.

Is This a Revamping of Survival of the Fittest?

Looking at the capacities of the soda industry members, Asahi Glass tops the list with a share of 9.2 percent, followed by Toyo Soda with 8.8 percent, Tokuyama Soda with 7.3 percent, Toa Gosei with 6.1 percent, and Kanegafuchi Chemical with 4.6 percent.

Among these companies, Asahi Glass accounts for 53 percent of the glass sales, which is its main line, so that it can readily cover the low profit from soda. Toyo Soda also makes resin products such as vinyl chloride as well as cement and fine chemicals. Tokuyama Soda accounts for 42 percent of cement sales, which together with soda production provides it with two pillars to work on, and it is leading in the new technology of the ion-exchange membrane method.

According to an industry communication, "Asahi Glass heads the list of those aiming at 1984, while slightly behind it are Tokuyama Soda and Kanegafuchi Chemicals which make up the second group. The companies which lag behind include those which are pondering whether this is the proper course to follow while they tag along."

In addition, a certain industrial executive said: "It probably will be the situation from now on that either the large or the medium and small industries will be the only survivors. An industry whose production volume and siting conditions are inadequate cannot help but perish," is his prediction.

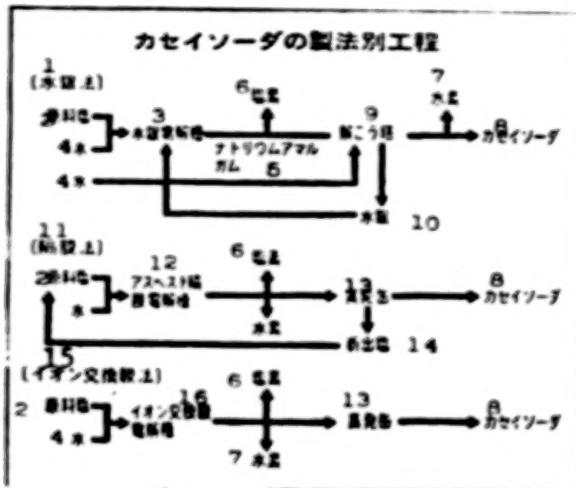
The gap between the large makers with technological and financial strength and the medium and small makers is forever increasing. Furthermore, the environment in which this industry is placed is one in which any small-scale effort is doomed.

The statement by Dow Chemical that "Japan's caustic soda industry is beset by energy, raw material, and siting problems such that producing soda in countries with cheaper costs and transporting it to Japan where this product can be used as the base to make products of add-on value will be cheaper" attests to this situation.

In this respect Japan's large makers, particularly Asahi Glass, say with determination: "Any further increases will have to take place in foreign lands such as Canada and Australia, where energy cost is cheap" as they reveal their plans for overseas expansion.

Setting aside electrolytic facilities used to provide products for in-house use, the time has come when a company must set out for foreign lands if it is to survive. It seems that industries which are lacking in competitive strength will have to come under the umbrella of stronger companies or take up contract production, and the Asahi Glass-Hokkaido Soda arrangement appears to be the opening wedge in this direction.

Caustic Soda Production by Different Processes



- Key:
- | | |
|---|----------------------------------|
| 1. mercury method | 2. raw material salt |
| 3. mercury electrolytic cell | 4. water |
| 5. sodium amalgam | 6. chlorine |
| 7. hydrogen | 8. caustic soda |
| 9. amalgam decomposition tower | 10. mercury |
| 11. barrier membrane method | |
| 12. asbestos barrier membrane electrolytic cell | |
| 13. evaporating pot | |
| 14. precipitated salt | 15. ion-exchange membrane method |
| 16. ion-exchange membrane electrolytic cell | |

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